



# ABSTRACT BOOK

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**BIOMEDICAL SCIENCES**

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**Abdullaieva S.H., Gasanova A. R****ANATOMICAL FEATURES OF SURGICAL INTERVENTIONS ON THYROID GLAND ASSOCIATED WITH RECURRENT LARYNGEAL NERVE****Kharkiv national medical university, Kharkiv, Ukraine****Department of Operative Surgery and Topographic Anatomy**

**Introduction.** Currently, the trend towards increasing the number of patients with peripheral paresis and paralysis of the larynx is mostly due to the increasing number of surgical interventions on neck and chest, associated with recurrent laryngeal nerve (ULN).

**Purpose.** Definition of probability and causes of nerve trauma age with persistent unilateral paralysis of the larynx.

**Material and methods.** 150 patients with thyroid cancer (TC) after extrafascial operations in age from 15 to 75 years were examined. In all patients, the diagnosis was confirmed during a routine histological examination. Follicular thyroid cancer was observed in 69 patients, and papillary carcinoma - in 78 patients. Follicular variant of papillary tumor was observed in 1 patient and in the two cases were identified papillary follicular thyroid cancer. Clinical condition of the vocal cords was assessed on the basis of complaints and indirect laryngoscopy in the preoperative period to the second and seventh days and three months after surgery.

**Results.** In the analysis of the survey data before and during the hospital stage, the vocal cord mobility of all patients was in full volume. In postoperative period the complaints of hoarseness of varying severity were presented by 8 patients (5.3%). During the indirect laryngoscopy 2 days after surgery, the larynx immobility with one side was observed in 4 out of 150 patients ( 2.7 %), namely, after the GTE in 1 out of 86 ( 1.2%) patients and after the TEQ -in 3 of 45 (6.7% ) patients. In the remaining 4 patients was discovered swelling and incomplete closure of the vocal cords during phonation. This situation is regarded by us as the consequence of intubation. All patients underwent medical therapy at discharge and on 7 day the mobility of the larynx recovered completely. One patient with postoperative unilateral paralysis of the larynx GTE after performed non-radical surgery on the thyroid gland in another hospital. A separation of scarring recurrent nerve was injured, although his integrity was preserved. Following the medication mobility larynx was fully restored. Three patients underwent TE extrafascial recurrent disease after intracapsular operations. They marked unilateral laryngeal paralysis during the postoperative stage. In one case, the recurrent nerve had loose type and consisted of three twigs in the other - the nerve at the confluence of the trachea was "bricked" the scar tissue of the thyroid gland. A third TE patient was conducted after three operations on the thyroid gland and on one side of the recurrent nerve was not identified due to the pronounced scarring and neoplastic processes. In given patient during postoperative period raised hoarseness, shortness of breath, associated, apparently, with the formation of a hematoma in the projection of the left lobe. All patients in the postoperative period had therapy with the appointment of neostigmine, vitamin -B12 and laser therapy. Nevertheless, three patients remained with laryngeal hemiplegia. During the extrafascial thyroid surgery only one out of 45 patients produced thyroidectomy caused by recurrent nerve trauma with persistent unilateral paralysis of the larynx , due to anatomical and topographical features .



**Conclusion.** Thus, when performing extrafascial thyroid surgery, it has not been possible to identify the recurrent nerve except one patient, but due to the anatomical topography associated with the previous operation, performed thyroidectomy caused trauma to the recurrent nerve with persistent unilateral paralysis of the larynx in 3 of 45 patients (6,7%).

**Abhilash Mesh, Nakonechnaya S., Grabovetskaya E.**  
**NANOTECHNOLOGIES WORK FOR MEDICAL CHALLENGES**  
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**Department of Medical and Bioorganic Chemistry**

**Introduction.** Richard P. Feynman, the Father of Nanotechnology, mentioned in his famous lecture “There is plenty of room at the bottom” the idea of swallowing a surgeon. This “nano-surgeon” would recognize infected cells and remove those brick-by-brick, rather than demolishing an entire wall. It would leave neighbouring normal cells intact, thus neither the toxicities of “chemo” drugs nor surgically produced deformities would result. Nanomedicine is a new branch of science that tries to find nanotechnology solutions for medical challenges.

**Results.** 1. Cantilevers: These are tiny lever anchored at one end. They can be designed such that they bind to molecules that represent a deviation from normality, such as altered DNA sequences or proteins present in infected cell. When these molecules bind to the cantilevers, surface tension changes causing the cantilever to bend. By monitoring this bending, scientist can identify the type of molecule that has caused the bending. This may help in identifying infected cells even if they are present in very low concentrations. 2. Nanopores: These are tiny holes that allow the DNA molecule to pass through one strand at a time. By monitoring the shape and electrical properties of each base or letter on the strand of DNA, scientist can decipher the encoded information on DNA. This is possible because shape and electrical properties are unique for each of the four bases that make up the genetic code. Errors in the genetic code associated with a particular disease can also be located. 3. Nanotubes: Carbon rods, about half the diameter of a molecule of DNA, can detect the presence of altered genes and also pinpoint the exact location of those changes (mutations). 4. Quantum Dots: Nanoparticles of cadmium selenide (quantum dots) glow when exposed to ultraviolet light. The wavelength or the colour of the light depends on the size of the dot. injected, they seep into cancer tumours. The surgeon can see the glowing tumour, and use it as a guide for more precise cutting of tumours. Quantum dots demonstrate the nanoscale property that colour is size dependent. By combining different sized quantum dots within a single bead, scientists can create probes that release distinct colours and intensities of light. When the crystals are hit by UV light, each latex bead emits light that serves as a sort of spectral bar code, identifying a particular region of DNA, which is associated with a particular type of cancer. We know that most cancers arise from multiple mutations within DNA. Thus several quantum dots can be designed to show several cancer associated regions of DNA simultaneously. This can potentially eliminate the need for surgical biopsy (removal of tissue for histopathological examination under microscope). 5. Nanoshells: These are minuscule beads coated with gold that absorb specific wavelengths of light. These shells then get heated up and kill the surrounding cell. By engineering the nanoshells to selectively link with the antibodies associated with a diseased cell, we can ensure that the nanoshells seep only into the tumour and destroy it, leaving the neighbouring normal cells intact. This has already been done using near-infrared light on animal cancer cell line cultures.



**Adamsky M.A., Piskarova A. M., Litvinov I. O., Muchnik A. A.**  
**ANDROGEN DEPRIVATION THERAPY IN PROSTATE CANCER**  
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**Introduction.** Nowadays prostate cancer occurrence is steadily growing comparing with other types of cancer in men like stomach cancer and lung cancer. In Europe, according to the statistics of 2002 85000 new cases of prostate cancer were detected when in 2006 this figure increased up to 345900 cases. This number constitutes 20.3% of all types of cancer in men. The mortality of prostate cancer is 9.2%. This mortality rate stands on the third place among all types of cancer in men after lung cancer (26.6%) and colorectal cancer (11.3%). There are a lot of reasons that cause prostate cancer. They are: bad ecology, increase of the average life expectancy (the risk of prostate cancer increases at the age of 65 -75 years) and others.

**Results.** The standard local therapies for this condition include radical prostatectomy, external beam radiotherapy and, more recently, brachytherapy. Approximately 40% of men with clinically localized prostate cancer, or about 60 000 men each year, are managed conservatively, meaning that they receive neither surgery nor radiotherapy with the intent to cure within 1 year of diagnosis. One of the latest methods of prostate cancer treatment is androgen deprivation therapy which is based on depletion of prostate androgen receptors. Prostate cancer cells are highly reliant on the androgen receptor (AR) protein for growth and survival. Blocking AR activity via androgen deprivation therapy (ADT) is a primary treatment against prostate cancer. Radiotherapy injures cancer cells by causing their DNA damage. Cancer cells in their turn try to survive this insult by starting DNA repairing processes. It works like this: radiation-injured cells sense damaged DNA and turn on DNA repair pathways, involving many specialized enzymes that perform functions such as pasting broken DNA strands back together. It was found that the ability of tumors to repair their injured DNA strands is reliant on the activity of androgen receptors. When these receptors are blocked, repararion processes in cancer cells stop. If at the same time with ADT run radiotherapy(RT) it will lead to killing these cells. The effectiveness of this bilateral punch hinted that AR had yet-unknown functions in managing responses to DNA damage. Over time however, the cancer cells that remain even after ADT acquire new mutations, and patients will all too commonly suffer from recurrences with aggressive tumors that can grow even under androgen-depleted conditions. It was found that among 176 genes responsible for DNA reparation only 32 are directly regulated by the activity of androgene receptor. Other 144 genes have less direct connections with AR. It is believed that the reason of prostate cancer recurrence in the case of bilateral (ADT and RT) treatment is connected to these 144 genes. It is vitally important to more fully understand how prostate cancers grow despite AR depletion, in order to cure prostate cancer once and for all.

**Adogba Oluwabusola Fausat, Isaeva I.N., Karmazina I.S., Bylinina O.D.**  
**PHYSIOLOGICAL BASIS OF EMERGENCY AID DURING VASCULAR**  
**CRISIS**

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**Background.** Autonomic reflexes are extremely various and numerous and they have very important scientifically grounded diagnostic and therapeutic value.

**Results.** There is an opinion about stimulation of carotid artery baroreceptors by pressing at the point where the common carotid artery divides into its two main branches to



normalize high blood pressure leading to activation of carotid sinus reflex slowing of the heart rate which is based on the following mechanism: when the baroreceptors are activated (by an increased blood pressure), the NTS (Nucleus Tractus Solitarius) activates the CVLM (Caudal Ventrolateral Medulla), which in turn inhibits the RVLM (Rostral Ventrolateral Medulla), thus inhibiting the sympathetic branch of the autonomic nervous system, leading to a decrease in blood pressure. Likewise, low blood pressure causes an increase in sympathetic tone via "dis-inhibition" of the RVLM. The NTS also sends excitatory fibers to the dorsal nucleus of vagus nerve that regulate the parasympathetic nervous system, aiding in the decrease in sympathetic activity during conditions of elevated blood pressure. But excessive stimulation of carotid sinus can cause carotid sinus reflex death which is a disputed mechanism of death in which manual stimulation of the carotid sinus allegedly causes strong glossopharyngeal nerve impulses leading to terminal cardiac arrest. A carotid massage can also possibly dislodge a thrombus, or some plaque. This could lead to any number of life threatening effects, including stroke. There is another opinion how to lower high blood pressure which is pressing in region of epigastric area. This reflex arc begins from receptors of inner organs; they send impulses by splanchnic nerve to the spinal cord. In spinal cord impulses travel to the vagal center of medulla oblongata increasing activity of vagal nuclei leading to negative effects to the myocardium with following deceleration of heart rate, lowering of blood pressure. But excessive irritation in this region leads to strong excitation of vagal center with following symptoms: acute bradycardia, respiratory arrest, hypotension, unconsciousness.

The point of next opinion that patient with hypertensive crisis or paroxysmal tachycardia can lower heart rate and blood pressure by the pressing the eyeball causing activation of oculocardiac reflex. Oculocardiac reflex is a slowing of the rhythm of the heart following compression of the eyes; slowing of from 5 to 13 beats per minute is normal. The reflex is mediated by nerve connections between the ophthalmic branch of the trigeminal cranial nerve via the ciliary ganglion, and the vagus nerve of the parasympathetic nervous system. Nerve fibres from the maxillary and mandibular divisions of the trigeminal nerve have also been documented. These afferents synapse with the visceral motor nucleus of the vagus nerve, located in the reticular formation of the brain stem. The efferent portion is carried by the vagus nerve from the cardiovascular center of the medulla to the heart, of which increased stimulation leads to decreased output of the sinoatrial node. Bradycardia, junctional rhythm and asystole, all of which may be life-threatening, can be induced through this reflex in case of excessive irritation. Currently, there are results of scientific research suggesting that respiratory training could be used as a promising intervention to increase baroreceptor cardiac function in primary hypertension. In literature one mixed opinion exists about using of forced respiration or cough affecting to the coronary circulation. But even in case of superficial breathing hypoxia causing coronary vasodilation and increasing blood supply of myocardium. Next recommendation is hot or warm foot bath causing local vasodilation and redistribution of blood. Local vasodilation is caused by bradykinin which is forming in case of skin heating. There is an opinion that bradykinin reduces focus of myocardium necrosis. In addition, it initiates releasing of vasodilators such as nitrogen monoxide and prostaglandins. But effect of bath is based on cutano-visceral reflexes. Peculiarity of these reflexes is connection of skin receptors to the sympathetic system that is why the stimulation of skin receptors results in sympathetic effects.



**Conclusions.** Usage of autonomic reflexes' effect in emergency aid in case of acute cardio-vascular disorders must be accurate because incorrect usage of them can cause negative symptoms and even lead to a fatal termination.

**Alexeenko R.V., Risovanaya L.M.**

**HEALTH AS A GUARANTEE OF SUCCESSFUL PSYCHOSOMATIC  
HUMAN DEVELOPMENT**

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**Background.** Human Health - one of the most important aspects of life. The problem of human health, which in terms of accelerating scientific and technological progress of increasingly high demands, is one of the most complex and urgent. No exaggeration to say that it rightfully belongs today to the problems, which are called global.

**Results.** Health of citizens - guarantee prosperity of country. In the bustle of everyday life, we seem to have forgotten how important it is to take care of their health. Among the Ukrainians are few who think of it saves him from childhood and adolescence. We are squandering their health, sincerely believing that it is infinite. Rights was an English clergyman and historian Thomas Fuller, when he said: " Health is not valued till sickness comes." Extension of health issues among the priorities of social development necessitates theoretical and methodological understanding of the phenomenon shows the urgency of the deployment of scientific researches. It is rarely anyone thinking at an early age. Health problem begins to worry us when this health itself was so small that we inevitably begin to take care of its remains: visit doctors, get on the diet, and write recipes healing heard from random passengers in the truck. Any disease occurs long before the onset of the clinical picture. Of course, the medicine can only be preventive, and then the main task of the doctor will not treat, and prevent disease. It possible in a whole complex of preventive measures. Said again convinces us that the formation of a healthy lifestyle (HLS) is one of the most important areas of modern medicine. Causing socio-economic, natural, cultural and other factors, HLS is ultimately determined by the man himself, his activities and behavior. Therefore extremely important for the formation of healthy lifestyle is to educate every person responsible attitude to their own health and the health of others. The concept of healthy lifestyle includes: a safe and supportive living environment, nutrition, physically active life, respect for the rules of personal and public hygiene, avoiding harmful habits emotional well-being. Most often, the formation of the majority of people HLS , which as a result contributes to a marked strengthening and improving health , carried out in three phases so-called levels : industrial, public and personal Industrial : certain conditions of human life, which made environmental control Public: propaganda and information work . Personal: A system for guiding values human base structure of everyday life in the family.

**Conclusions.** We always consider the person as a loose set of tools to function in this world - the intellect alone, emotions - a separate body - itself. And in this lies our main mistake. Man - a holistic system, which are equally important in the body, emotions, intellect, spirit. And you cannot build your life in only one of these "dimensions", ignoring other areas of life. Healthy lifestyle is a prerequisite for the development of the different sides of human life, reaching the active longevity and proper performance of social



functions. Everyone has the right to choose life that makes us happier. But it is difficult not to agree with the fact that there is nothing better than to live a long happy life in a beautiful and healthy body in a good mood, enjoying every minute, raising healthy children, and then to age in a cheerful spirit and no regrets about the past path.

**Amritpal Singh Khangura, Isaeva I.N., Karmazina I.S., Grigorenko N.V.**  
**REGULATION OF CIRCULATION DURING EXERCISES**  
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**Background.** Physical activity is accompanied by one of the most natural for the body's adaptive responses, which requires a good interaction of all parts of the circulatory system. The fact that skeletal muscles make up to 40 % of body weight, and the intensity of their activity may vary within very wide limits, puts them in a special position compared with other organs. Therefore, in the process of evolution close relationship of muscle contraction and cardiovascular system has been developed creating, as far as possible, the conditions for maximal muscle blood flow, even at the expense of decreased blood flow in other organs and systems which is regulated by neural and humoral mechanisms.

**Results.** Even before the muscle work, before a start point, there is a series of changes in various bodily functions. Significance of these changes is to prepare the body for the successful implementation of future activities. By nature the prestarting reaction is a conditioned reflex. Their value is to mobilize the cardiovascular system, so even before the muscle activity heartbeats becoming more frequent, and the pressure increases. At the onset of exercise, signals are transmitted not only from the brain to the muscles to cause muscle contraction but also into the vasomotor center to initiate mass sympathetic discharge throughout the body. Simultaneously, the parasympathetic signals to the heart are attenuated. Therefore, three major circulatory effects result. First, the heart is stimulated to greatly increased heart rate and increased pumping strength as a result of the sympathetic drive to the heart plus release of the heart from normal parasympathetic inhibition. Second, most of the arterioles of the peripheral circulation are strongly contracted, except for the arterioles in the active muscles, which are strongly vasodilated by the local vasodilator effects in the muscles and increase in sympathetic activity through cholinergic fibers, intensifying glycolysis in skeletal muscles, causes expansion of blood vessels (cholinergic vasodilation). Thus, the heart is stimulated to supply the increased blood flow required by the muscles, while at the same time blood flow through most nonmuscular areas of the body is temporarily reduced. Two of the peripheral circulatory systems, the coronary and cerebral systems, are spared this vasoconstrictor effect because both these circulatory areas have poor vasoconstrictor innervation—fortunately so because both the heart and the brain are as essential to exercise as are the skeletal muscles. Third, the muscle walls of the veins and other capacitative areas of the circulation are contracted powerfully, which greatly increases the mean systemic filling pressure. These effects, working together, virtually always increase the arterial pressure during exercise. This increase can be as little as 20 mm Hg or as great as 80 mm Hg, depending on the conditions under which the exercise is performed. When a person performs exercise under tense conditions but uses only a few muscles, the sympathetic nervous response still occurs everywhere in the body. In the few active muscles, vasodilation occurs, but everywhere else in the body the effect is mainly vasoconstriction, often increasing the mean arterial pressure to as high as 170 mm Hg.



Conversely, when a person performs massive whole-body exercise, such as running or swimming, the increase in arterial pressure is often only 20 to 40 mm Hg. This lack of a large increase in pressure results from the extreme vasodilation that occurs simultaneously in large masses of active muscle. Many different physiologic effects occur at the same time during exercise to increase cardiac output approximately in proportion to the degree of exercise. In fact, the ability of the circulatory system to provide increased cardiac output for delivery of oxygen and other nutrients to the muscles during exercise is equally as important as the strength of the muscles themselves in setting the limit for continued muscle work. In this case, the CO may increase by 5-6 times and up to 20 l / min.

**Conclusion.** Regular physical activity is one of the most important things for health. It helps to control weight, reduce risk of cardiovascular disease, reduce risk for type 2 diabetes and metabolic syndrome, reduce risk of some cancers, strengthen bones and muscles, improve mental health and mood, improve ability to do daily activities and increase chances of living longer.

**Ankita Sahu, Siritsa G., Kosilova O.**

**BLOOD BIOCHEMICAL INDEXES IN MICE WITH PERITONITIS DURING ANTIBIOTIC AND BACTERIOPHAGE TREATMENT**

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**Object.** Levels of plasma C-reactive protein (CRP) were checked for assessment of dynamics of protective inflammatory process during antibiotic and bacteriophage treatment of peritonitis.

**Materials and Methods.** 80 mice were taken for experiment. 70 of them were ill with peritonitis was caused by E. coli and 10 were healthy. Reference group included 10 healthy mice. Comparison group included 10 untreated animals with peritonitis. There were 6 experimental groups with 10 ill mice inside each of them. Etiological treatment of peritonitis was realized with different regimens. 1st, 2nd and 3rd experimental groups were treated with amikacin (A), gatifloxacin (G) and A+G combination. 4th, 5th and 6th groups besides antibiotics got Bacteriophagum Coli-Proteicum (BCP) namely A+BCP, G+BCP and A+G+BCP. Measurement of CRP was done at the 1st and 3rd days of treatment. Semiquantitative immunoturbidimetric assay was used. Set of reagents was produced by "Phyllis Diagnostics" Dnepropetrovsk, Ukraine. Probe with CRP level higher than 15 mg/l were estimated as positive, equal to 6-15 mg/l - weak positive, less than 6 mg/l - negative.

**Results and Discussion.** During all period of supervision index of CRP of referent group was equal to  $12 \pm 1.8$  mg/l and CRP of comparison group was equal to  $22.4 \pm 2.5$  mg/l. At the 1st day of therapy indexes of experimental groups were not differ from comparison group indexes authentically. At the 3rd day increase of CRP level was valid ( $p < 0.05$ ) in the 5th group with G+BCP therapy ( $14.5 \pm 1.4$  mg/l) and in the 6th group with A+G+BCP therapy ( $15.2 \pm 1.5$  mg/l). Therapy with A, G and A+BCP combination did not cause significant changes of CRP levels during whole period of supervision.

**Conclusions.** In the 5th and 6th groups were treated with G+BCP and A+G+BCP, levels of CRP were decreased faster than in other groups. Thus recovery rate of homeostasis and reparative processes were faster inside the 5th and 6th groups. So, offered antimicrobial regimens were effective.



Bayrachnyy C.

## CHANGES IN ANTIBIOTIC SENSITIVITY IN GROUP A STREPTOCOCCI

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**Introduction.** Streptococcus pyogenes (*S. pyogenes*) (group A Streptococcus (GAS)) is exclusively a human pathogen, the T antigens of which form the basis of a major serological typing scheme, an alternative or supplement to M typing. GAS is well known as a highly adhesive extra-cellular organism, the virulence of which is related to the production of exotoxins and the presence of particular surface components. Its extraordinary biological diversity becomes evident in the wide range of diseases and in the antigenic heterogeneity present on its surface. Infection of GAS may spread through direct contact with mucus or sores on the skin. GAS infections can cause more than 500,000 deaths per year. A ubiquitous organism, *S. pyogenes* is the most common bacterial cause of acute pharyngitis, accounting for 15-30 % of cases in children and 5-10 % of cases in adults. A global trend of increasing antimicrobial resistance, but with wide variations at national levels, is well-documented in the literature. Strong evidence supports an association between antibiotic use and resistance in hospitals. By contrast, the relationship between antibiotic consumption and resistance has been more difficult to establish for the outpatient setting, although some data suggest a direct correlation for streptococcal infections. Despite possible changes in virulence, group A streptococci have universally remained susceptible to penicillin since its introduction. This is of considerable interest, since other streptococci have developed multiple antibiotic resistance. Penicillin is still considered first-line therapy in the treatment of most GAS infections despite a recognized increase in microbiologic failure rates. Erythromycin has been the antibiotic of choice in the penicillin-allergic child for most GAS infections, yet impressive emergence of resistance has been documented on three continents during the last 30 years.

**Results.** Work this year in several countries indicates macrolide resistance in approximately 5–20 % of strains, whereas in China, resistance occurs in over 95 % of strains. Erythromycin resistance ranges from as low as 1,3 to 5 % at endemic levels to more than 45 % during outbreaks in Finland, Sweden, and Japan. High rates of resistance have also been reported sporadically in Australia (17 %), the United Kingdom (22,8 %) , Taiwan (rate not specified) , and Italy (40 %) . Documentation shows that changes in the prescribing patterns of physicians to reduce macrolide antibiotic use have often resulted in a decrease in resistance. In 1993, Rathore and Jenkins in Jacksonville, Fla., reported that 2 µg of erythromycin/ml was needed to inhibit growth of 99 % of isolates by agar dilution. They concluded that while most isolates in their area remain susceptible to erythromycin, many no longer were fully susceptible, with MICs of  $\leq 0,5\mu\text{g/ml}$ . Macrolide resistance in *Streptococcus pyogenes* results primarily from modification of the drug target site by methyltransferases encoded by *erm* genes, *erm(A)* and *erm(B)* or by active efflux mediated by a *mef*-encoded efflux pump. Resistance to tetracycline has been reported to be high, making it virtually unusable as an alternative for the treatment of GAS infections.

**Conclusions.** All studies agree that there is a need for surveillance of antimicrobial susceptibility to detect emerging local patterns, since resistance varies widely in different parts of the world, as well as in different areas of the same country.



**Bereznyakov A.A., Grabovetskaya E.R., Nakonechnaya S.A.**  
**NANOBIOPHOTONICS AS A PRIOR BRANCH OF THE MODERN MEDICINE**

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**Department of Medical and Bioorganic Chemistry**

**Introduction.** An intense interest in nanoprojects is caused by the fact that recently nanotechnologies have a huge potential of commerce application in various fields. In the modern medicine an issue of nanotechnologies application consists in the necessity of cell's restructuring molecularly, that ultimately will let not only implement the medicinal-diagnostic programs knowledgeably, but also develop new criteria of therapeutic approach to issues solving in practical medicine. One prior branch is a new interdisciplinary area of the Science – nanobiophotonics which combines number of directions of photobiology, photochemistry, bioorganic chemistry, physical and chemical biology, nanobiology and photonics (Popescu G. (Ed.), 2010).

**Aim.** The primary object of nanobiophotonics is study of molecular machinery of the light-energy conversion and related photochemical processes as well as reactions in various model systems on molecular, submolecular and nanomolecular levels (Brown C.T. et al., 2010). In order to have a clear and more argued understanding of pure mechanism of this process, the research of physical phenomena have been conducted which determine photons interaction with nanosized structures of devices and biological objects (Popescu G. (Ed.), 2010).

**Results.** The objects of this branch research are unique biological molecular transducers and converters of the quanta light energy into diverse types of chemical and physiological response, which present complex supramolecular and nanomolecular systems. They are classified as covalent (chromoproteins – retinal-containing proteins) and noncovalent (nuclear receptors of retinoic acid, retinoid-transport proteins) – complexes of retinoids with molecular protein receptors, which molecule of retinoid (derivate of vitamin A) is a unique natural photo-transforming antenna with a great variety of functions. And herewith, polyene chain geometry of retinoid molecule is a key factor that determines type of physiological response by the host organism (Khodonov A.A. et al., 2011). The new photosensitive model systems of compounds based on molecular hybrids of retinoids and phytochromes of spiropyranes and dithyenylenes classes were explored. The final structural geometry of retinal's molecule goal analogues was established on the basis of obtained results of topography computer modeling of bacteriorhodopsin chromophore antrum as an object-bionanotarget among other retinal-containing proteins (Barachevsky V.A. et al., 2012).

**Conclusions.** Based on the analysis of numerous published data from devoted to nanobiophotonic technologies and also according to the results of conducted research it can be concluded that creation of new original nanostructural organic and inorganic materials for transducers construction with guided optical response let to apply them widely in biomedicine.

**Bojtsova A., Martynova S.N.**

**PROTECTIVE FEATURES OF PUMPKIN PECTIN UNDER INFLUENCE ON  
RATS OF INCREASED CONCENTRATION OF COBALT**

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**Department of Biochemistry**

**Introduction.** Worsening of ecology owing to continuous increasing of technogenic influence in industrialized countries, also in Ukraine, is one of important reasons of



increasing population morbidity. At first, environmental pollution hurts children. During last years we see increasing of ecodetermined nephropathies in morbidity structure in children. Heavy metals are the main polluters of environment. It is known that different xenobiotics influence on kidneys more than other organs. We have shown renal toxicity of increased concentrations of cobalt.

**The purpose** of the investigation was to study protective features of pumpkin pectin under introduction of cobalt to rats.

**Materials and methods.** We experienced on rats-males Vistar at age of 1 month, treated in standard conditions of vivarium. They were divided in groups: 1) intact animals, that daily during one month received through the probe intragastric 1 ml of distilled water; 2) rats that received solution of cobalt chloride (maintenance of cobalt was 0,24 mg/l, 1 ml/100g); 3) rats that received with cobalt chloride pumpkin. In one month animals were removed from experiment by decapitation under light anesthesia with thiopental. We made determining of biogenic elements in liver and kidneys with atomic-absorption spectrophotometry. We extracted lipids from homogenates of kidneys and liver from subcellular fractions with help of procedure of Bligh and Dyer and fractionated them with help of thin-layer chromatography.

**Results.** Our research showed accumulation of cobalt in cells of kidneys and liver, especially kidneys, while receiving of cobalt solution. In kidneys cobalt accumulates more in mitochondrion, and in liver it accumulates more in mitochondrion and cytosol. Increased coming of cobalt leads to repartition of biogenic elements, as result we see decreasing of copper, zinc and magnesium and increasing of calcium. In liver maintenance of all this elements decreases. Changing of concentration of biogenic elements influences on activity of many enzymes, and, at last, on metabolism in kidneys. We see significant changing of lipid metabolism as many enzymes depend on zinc and magnesium. Research showed changing of synthesis and distribution of lipids in subcellular fractions of liver and kidneys. Animals that received pumpkin had almost normal indices.

**Conclusions.** Though we can draw conclusion that pumpkin pectin has protective features. Pumpkin is good sorbent and though increases cobalt concentration in organism and toxic damage of kidneys.

**Dan'azumi I. Alhaji**

### **SPIRITUALITY AND MEDICINE**

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**Introduction.** Religious beliefs and practices are important in the lives of many patients seeking medical care, yet many physicians are uncertain about whether, or how, to address spiritual or religious issues. Often physicians are trained to diagnose and treat disease and have little or no training in how to relate to the spiritual side of the patient. In addition, the physician's ethic requires that the physician not impinge his beliefs on patients who can be particularly vulnerable when supplicants for health care. Complicating it further, in our culture of religious pluralism, there is a wide range of belief systems ranging from atheism, agnosticism, to a myriad assortment of religions. No physician could be expected to understand the beliefs and practices of so many differing faith communities.

**Results.** Regardless of their own belief system, physicians should not allow their own bias to blind them to the appreciation of the possibility that religion and spiritual beliefs play an important role for many of their patients. When illness threatens the health, and



possibly the life of an individual, that person is likely to come to the physician with both physical symptoms and spiritual issues in mind. Spirituality can be defined as ". . . a belief system focusing on intangible elements that impart vitality and meaning to life's events. Many physicians and nurses have intuitive and anecdotal impressions that the beliefs and religious practices of patients have a profound effect upon their experiences with illness and the threat of dying. It is generally accepted that religious affiliation is correlated with a reduction in the incidence of some diseases such as cancer and coronary artery disease.

**Conclusion.** At first glance, the most simple solution suggests that physicians avoid religious or spiritual content in the doctor-patient interaction. As with many issues, however, the simple solution may not be the best. This topic page inquires into the possibility that within the boundaries of medical ethics and empowered with sensitive listening skills, the physician may find ways to engage the spiritual beliefs of patients in the healing process, and come to a clearer understanding of ways in which the physician's own belief system can be accounted for in transactions with patients. Appropriate referral to the hospital chaplain will be explored as well as ways in which the physician and clergy may best work together for the good of the patient.

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**DIROFILARIASIS: MODERN SITUATION IN UKRAINE**  
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**Introduction.** Dirofilariasis it is a disease which caused by nematodes of genus *Dirofilaria* in organism of human. Infection occurs through the bite of transmissible by mosquitoes, infected with larvae dirofilary. Source of infestation are sick dogs and cats, wild animals less. In an infected person parasites localized in the conjunctiva and cornea of the eye, the upper and lower eyelids, in the occipital region, on the neck on the face in the area of wings of the nose and cheeks. Common symptoms are: headache, nausea, weakness, worsening pain at the location of helminth. In case of defeat conjunctival itching, tearing, pain at rest and on palpation, foreign body sensation in the eye. With the defeat of eyelids: swelling, redness of the skin, under the skin are formed nodules. For diagnostic is applied medical ultrasonography, enzyme-linked immunosorbent assay (ELISA), polymerase chain reaction (PCR). First dirofilariasis has been described by the Portuguese physician Luzitano Amato in 1566. He described the case of extraction of the worm from the eye of 3 year-old female. The causative agent of dirofilariasis belongs to the phylum Nematoda roundworms, class Secernentea, order Spirurida, family Onchocercidae, genus *Dirofilaria*. Most common species are *Dirofilaria immitis* and *Dirofilaria repens*.

**Results.** *Dirofilaria immitis* ( or heartworm ). Their mature stages live in the right ventricle of the heart and blood vessels of the lungs. Final hosts are canines, cats, ferrets, sea lions and very rarely people. Places of distribution: South of the USA, South America, Southern Europe, Middle East, Australia, Japan. *Dirofilaria repens* – nematode, which parasitize in dogs, cats, wolves, coyotes and foxes. Person also can be infected, but the worms can't become viripotent in the human body. Encountered in the Mediterranean (particularly France and Italy), Eastern Europe, the territory, which lies south of the Sahara.

In the Commonwealth of Independent States countries, including Ukraine, is found only a subcutaneous dirofilariasis invasion by *Dirofilaria repens*. Mosquitoes genera *Aedes*,



Culex and Anopheles spread it. Subcutaneous dirofilariasis is single transmissible helminthiasis in Ukraine. In these countries from 1956 to 1995 91 person had the disease; from 1996 to 2001 were revealed 152 cases. If you take the world statistics: until the mid of the last century have been diagnosed only a few tens cases of dirofilariasis, and over the past 50 years, their number has increased dramatically. From 1995 to 2000, identified 372 new cases in 25 countries, and by 2003 the number of reported cases of invasion of human *D. repens* reached 782. According to prof. El Bodnja over the past 10 years, the frequency of dirofilariasis increased in 52 times. This helminthiasis does not take a leading place, but this problem every year become more actual. Importation of purebred hairless dogs, which are infected by larvae - it's the reason of disease. The territory of Ukraine is a favorable area for vector-borne of invasion. no events for their prevention, growth strength of animals contribute to spreading of the disease. So the studying of ecological and biological characteristics of the parasite and the prevalence of the disease it causes is actual. It can be improve the diagnosis, treatment and develop effective prevention.

**Fedko K.O., Lukyanova L.V., Bachinsky R.O., Limanskaya A.A., Alekseeva T.M.**  
**INFLUENCE OF CARBAMAZEPINE AND ITS PHARMACOLOGICAL**  
**COMBINATIONS ON EMOTIONALLY-BEHAVIORAL REACTIONS OF RATS**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of medical and bioorganic chemistry**

**Introduction.** There is a frequent combined therapy in medical practice to increase the drug's effect. The opportunity of getting more powerful activity from pharmacological composition in comparison with every separate drug became a basis to creation of a new pharmacological combination. There was found out from literature sources that, this is the frequent procedure to add an nitrocontaining organic compounds to combined analgesic remedies such as: paracetamol, carbamazepine, caffeine. The data about these pharmacological combinations is absent. The purpose of the work is in studying of carbamazepines' combinations with paracetamol and caffeine effect on CNS of the rats (in particular on the emotionally-behavioral reactions of rats in the background of formalin edema in the "open field" test).

**Materials and methods.** Experimental research was done on the "WAG-line" rats, middle weight of 210-230 g (5 groups of 6 animals in each). The rating of the preparations and their combinations of animals' behavioral characteristics was done in comparative way of 3-5 groups in conditions of formalin edema (gr.3 – carbamazepine (6,25 mg/kg), gr.4 – combination of carbamazepine (6,25 mg/kg) with caffeine (0,6 mg/kg), gr.5 – combination of carbamazepine (6,25 mg/kg) with paracetamol (30 mg/kg) with positive control (gr.1 – 3% starch mucus, 2ml/200 g) and with negative control (gr.2 – 3% starch mucus, 2 ml/200g in conditions of starch mucus) in 4 hours after its modeling (in the background of maximal starch edema). Researching drugs were injecting in one time intragastrically in view of suspension to 3% starch mucus in 1 hour before the development of maximal edema, 3% starch mucus was injected analogically. The animals' behavior in "open field" test was evaluated in common behavioral acts: motor activity, oriental-researching reaction and emotional reactivity in common method along 3 minutes.

**Results.** Starch edema modeling (group 2) contributed to statistically reliable increasing of horizontal motor activity (HMA and VMA) and decreasing of defecations' amount, and also sturch edema contributed in increasing vertical motor activity development and amount of



urinations, in decreasing of cognizing activity (CA) and grooming. Monoinjection of carbamazepine (gr.3) contributed in statistically reliable decreasing of HMA, VMA, CA, grooming, the amount of defecations concerning to starch edema (gr.2) and control group (gr.1). The adding to carbamazepine a caffeine (gr.4) and paracetamol contributed to statistically reliable decreasing (concerning to group 3) of HMA, VMA, the amount of defecations and did not has an influence on CA, grooming, the amount of urinations.

**Conclusions.** 1. Carbamazepine and its combinations with caffeine and paracetamol in starch edema conditions have an influence on EBR of rats. 2. It is need to be researched the influence of three-component compounds (carbamazepine, caffeine, paracetamol) on the EBR of rats in starch edema conditions. 3. It is perspectival to research an influence of nitrocontaining drugs on EBR of rats in starch edema conditions in the view if mono-, two-, three-component combinations in other model pathologies' conditions.

**Filipskiy I.O., Ryhlik S.V.**

### **THE METHOD FOR PREPARING HISTOLOGICAL SLIDES OF THE REPRODUCTIVE SYSTEM**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Such organs of the reproductive system as prostate gland, testes and epididymides have thin delicate structure that is easily damaged during histological processing.

**Aim:** To study the methods for preparing and staining slides of the prostate, testes, testicular appendages of the dog.

**Materials and methods.** Samples of prostate gland with the size from 0.5 cm till 1 cm were fixed in 10 % formalin solution for 48 hours. Then were used conventional methods of dehydration and embedding in paraffin. In a first step the samples were carried out through alcohols of 70°, 80° and 96° (3 portions). Embedding in paraffin began with dipping the samples in a mixture consisted of chloroform and paraffin in equal parts (1:1) for 40 minutes in a thermostat at 37°C. Then the samples were placed in the paraffin № 1 for 40 min., then in the paraffin № 2 for 40 minutes, and then were embedded in the paraffin № 3 for additional 40 min. As a rule, the Merkulov's method specifies embedding time for 30 min totally. Thus, we had to change the exposure during placing tissue in paraffin. The next step was to make thin (7mc) histological slides and stain. For review, we used the conventional histological hematoxylin-eosin staining, but we didn't use Merkulov's hematoxylin and Koratsi's hematoxylin, in combination with a short exposure in the dye (2-3 min. instead of 5-10 min.).

**Results and conclusions.** Changings in the exposure while embedding in paraffin and stain method differences made it possible to clearly identify all the cellular elements of the glands and their non-cellular structure. Additionally this staining process was faster, and did not affect the quality of stained slides prepared.

**Frieda Tangi Silvanus, Boyagina O.D.**

### **MORPHOLOGICAL AND FUNCTIONAL FEATURES OF THE BREAST**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The breast is regarded as an accessory female genital organ. The main function of the breast is the sucking of infants. The breast lies on the surface of the major



pectoralis muscle. It extends proximally from the 2<sup>nd</sup> to the 6<sup>th</sup> rib distally and laterally from the sternum to the midaxillary line medially. The upper lateral part of the breast ascends into the axilla and is known as the axillary tail. The breast consists mainly of adipose tissue. The nipple, pointing anteriorly, lies between the 4<sup>th</sup> and 5<sup>th</sup> rib spaces. It is surrounded by a pink pigmented area. The areola becomes pigmented during pregnancy and contains a number of subcutaneous glands.

**Results and conclusions.** Various types of tissues are found in the breast. The glandular tissue of the breast consists of +- 20 lobes. Each lobe contains a number of lobules, which consist of glandular tissue. The alveoli of the glands are continuous with the lactiferous duct, which join to form 15-20 larger ducts leading to the areola. Just before the opening on the nipple, the ducts dilate to form milk sinuses. Fibrous connective tissue, this is found around and between the lobules of the lobes. Adipose tissue located around and between the lobules of the lobes, but also covers the surface of the breast just under the skin. Blood supply: the medial aspect of the breast is supplied by the perforators of the a. thoracia interna. The lateral aspect of the breast is supplied by the a. thoracia lateralis, a branch of the a. axillaris, as well as by branches of the posterior intercostals arteries. The venous drainage of the breast is by means of a venous anastomosis around the nipple, which drains to v. axillaris and v. thoracia interna. Lymph drainage: Lymphs drain mainly into the axillary lymph nodes. Nerve supply: the breast is supplied by the 4<sup>th</sup>, 5<sup>th</sup> and 6<sup>th</sup> thoracic spinal nerves, which also have sympathetic branches. Many sensory nerve endings is present in the breast, especially in the region of the nipple.

**Ghranyna E., Schebetun A.**

## **MEDULLA OBLONGATA IS THE VITAL CENTER OF THE BRAIN**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** A particular interest to the study is the medulla oblongata (MO) - part of the brain that performs a huge role in human life and having a length of about 25 mm. This department of CNS (central nervous system) performs several vital functions in the body. There are pyramids and olives outside, on the ventral side. On the dorsal side there are thin and wedge-shaped beams with thin wedge-shaped tubercles nuclei at the end, the lower half of the rhomboid fossa, which is the bottom of the fourth ventricle, and separating it rope bodies, lower legs of the cerebellum. The MO as well as the spinal cord (SC) performs two functions reflex and conductive. Eight pairs of cranial nerves (from V to XII) leave the medulla and the bridge, and the former as well as the spinal cord has sensory and motor direct links with the periphery.

**Results.** Through the MO the following reflections function: protective reflexes (cough, sneezing, blinking, tearing, vomiting), food reflexes (sucking, swallowing, secretion of digestive glands), cardiovascular reflexes regulating the activity of the heart and blood vessels. Also the automatically functioning respiratory center which provides ventilation is located in the MO and vestibular nuclei are located here. Therefore, not just delete, but even damage of the MO results in death. In addition to the conductive function, the medulla performs the explorer function. the conductive paths run along the MO. They connect cerebral cortex, diencephalon, midbrain, cerebellum and the SC with two-way link. The descending vestibulospinal tract begins from the vestibular nuclei of the MO. It is involved in the implementation of the posture reflexes, namely the redistribution of muscle tone. Poliomyelitis affects motor neurons in the SC and the MO (only in the cases when the



virus from the intestine penetrates into the blood, then into the CNS passing the blood-brain barrier.) They are the motor neurons that cause all the muscles of the body to move. In some cases paralysis occurs quickly, as if suddenly, sometimes paralytic phenomena are increasing gradually for several days. Covering more and more muscle groups, paralysis can affect the respiratory muscles. Then only the emergency medical service and artificial respiration save from death.

**Conclusion.** Thus, the medulla oblongata is the vital part of the human body, because the respiratory and cardiovascular centers are placed, and protective and digestive reflexes function there.

**Ghranyna E., Ippolitov D., Demyanenko P.**

### **THE MAIN FUNCTIONAL AND AGE CHARACTERISTICS OF THE LIVER**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of human anatomy**

**Introduction.** The liver - hepar, is located under the diaphragm, in the right hypochondrium, so relatively small part of the organ of an adult comes to the left from the midline. It is the big gland of the digestive tract, which weight is not more than 2 kg. Liver - "biochemical laboratory of an organism" which has the highest temperature in the human body, caused by high level of a metabolism (proteins, fats, carbohydrates), and also carbohydrates which are absorbed by a mucous membrane of intestines and turn into a glycogen in the liver. The liver on a par with skeletal muscles and fatty tissue is the main consumer of insulin. Insulin is necessary for realization of numerous anabolic processes in a liver. The liver plays the key role in synthesis and metabolism of proteins. Processes of synthesis and disintegration of many proteins (100% of albumine, 85% of globulins), reaminations and deaminations of the amino acids, a specific exchange of some amino acids, utilization of the amine substances with formation of urea are occurred in the liver.

**Results.** The liver has a large value in providing metabolism of lipids. All fatty substances which were acquired by cytes of a mucous membrane of intestines are postponed in the hepatocytes. There are also processes of interconversion of triglycerides, phospholipids, fatty acids, cholesterol and its esters, formation of 50-60% phospholipids are proceeded in the liver. The high-density lipoproteins provide transport of cholesterol in a liver where it is used for formation of bilious acids. Protein synthesis is decreasing after 60 years. The liver is reducing up to 70-80 years.

**Conclusion.** Thus the liver is the central organ which provide a normal course of metabolic processes in an organism and has the age features.

**Ghranyna E., Schebetun A.**

### **MEDULLA OBLONGATA IS THE VITAL CENTER OF THE BRAIN**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Human Anatomy department**

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**Conclusion.** Thus, the medulla oblongata is the vital part of the human body, because the respiratory and cardiovascular centers are placed, and protective and digestive reflexes function there.

**Golnik Y.V., Kulish A.S., Izmaylova L.V., Samoilenko S.E.**

### **INTRATRUNCAL STRUCTURE OF THE NERVES OF THE SUBOCCIPITAL MUSCLES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Human Anatomy**

**Introduction.** Normal functional activity and pathological changes of the musculoskeletal system is closely connected with the structure of nerves, especially afferent and efferent nerves and their endings. So this theme is very important for better understanding of functioning of the peripheral nervous system, its influence on the certain skeletal muscles.

**Materials and methods.** There were used materials of posterior rami of C<sub>1</sub> and C<sub>2</sub>, cadavers and histological materials of myelin fibers of the nerves of the animal and human suboccipital muscles.

**Results.** Learning intratruncal structure of the nerves of the suboccipital muscles shows uniformity of organization of these nerves. Their specific features include distinctions in the metric parameters which correlate with size of the examined animals. Analysis of the myeloarchitectonics of the nerves of the suboccipital muscles of human had shown that these nerves has myelin fibers of all subdivisions of the "A" type. 4 – 5 months fetus has myelin fibers with small and medium diameter in all examined muscles. Different nerves contain 80 – 84% of this fibers. During next months of embryogenesis intense increase of



number of the myelin fibers takes place. However the pace of this number increasing varies for examined nerves. In the 4 month fetus maximum number of the myelin fibers could be found among the nerves obliquus capitis superior muscle; in the 7 month fetus number of the myelin fibers is equal in all muscles. Before birth the number of myelin fibers is maximum among the nerves of the obliquus capitis inferior muscle and minimum among the nerves of the obliquus capitis superior muscle. Formation of conductory element of the examined muscles outpaces the process muscle “maturation” so it testifies about heterochronic development of suboccipital muscles and their nervous apparatus. Observed intense myelinisation of the nerve fibers in the examined nerves during the second part of embryogenesis coincides with the period of intense development of receptors in skeletal muscles described by L.K. Semenova (1961). Their differentiation proceeds intensively in the period of vertical statics formation (till the age of 3). In the age of 11 – 13 motor endings reach the definitive differentiation. Analysis of the myelin fibers contents according to their groups (thin, medium, thick and very thick) had shown that the nerves of each examined muscle has its own proportions of numbers of myelin fibers of different diameters. These proportion varies according to age. 4 months fetus has mostly thin (80 – 84%) and medium fibers. 7 months fetus has more medium fibers and some thick (10 – 18%) and very thick fibers. Number of thick and very thick myelin fibers increases till birth and in the first 2 – 3 years of the postnatal period. Then the increase rate slows down and the number of fibers reach the final point to the adult age. In the nerves of different suboccipital muscles of adults mostly medium and thick myelin fibers (65%) are found. The percentage of thin fibers is 23 – 26% and very thick – 6,2 – 7,3%. N.V. Mikchailov, L.D. Piontkovskaya and others who studied innervations of another body parts note this regularity. Observed features of myelogenesis of the nerves of the suboccipital muscles nerves shown that it consists of three stages. The stage of productive myelogenesis includes two phases: first phase lasts for 2 – 3 years of the postnatal life, second one continues till the end of the puberty period. It should be noted that before this age motoric and sensory regions of the brain are formed and matured, as well as afferent and efferent endings in the muscles are. Stage of stabilization of myelotectonics of the nerves of the suboccipital muscles corresponds to the adult age (first and second periods) and the stage of involution corresponds to advanced age and senium.

**Conclusion.** Change of number of fibers in the nerves depends on the muscles volume development but also outpaces it. Presence of large number of thin and medium fibers in the examined nerves is caused by their participating in innervations of the connective tissues surrounding joint capsules and ligaments. The percentage of different types of myelin fibers varies according to the age.

**Goncharenko M.N., Bachinskiy R.O., Nakonechnaya S.A.**

**INVESTIGATION OF ANALGETIC AND ANTIPYRETIC ACTION OF  
PARACETAMOL WITH CAFFEINE COMPOSITION IN EXPERIMENT**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Medical and Bioorganic Chemistry**

**Introduction:** In modern medicine combined medicinal remedies are applied with increasing frequency. It is known that a medicine drug of methylxanthine group – caffeine is often a part of them. It increases analgetic action of anti-inflammatory drugs. In previous



studies we examined the influence of caffeine on analgetic and antipyretic action of Diclofenac Sodium and Ibuprofen and drew the conclusion that it increases this action in their combination.

**Aim:** to investigate and analyze the influence of caffeine on analgetic and antipyretic action of paracetamol in an experiment on laboratory animals.

**Materials and methods:** The investigation of the influence of the combination of paracetamol and caffeine on animals was conducted on 48 white rats of both sexes of WAG strain with average weight of 200-400 g. The source and location of laboratory animals is the vivarium of KhNMU. The study was conducted in reliance on rules of “European Convention for the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes” (Strasbourg, 1986) and by agreement of the Third National Bioethics Congress (Kiev, 2007). The study of the analgetic and antipyretic action in the experiment was conducted on 24 animals, which were divided into 4 groups of 6 animals in each group. All the investigations were carried out according to current recommendations of O.V.Stefanov. The study of the analgetic action of peripheral genesis was conducted according to screening model “cramps” by A.S. Zacharevskiy. The investigation of the antipyretic action was carried out on the background of “milk-fever”. The collected data was processed by conventional methods of Fisher-Student’s statistical analysis on a computer through the use of MS Excel i StatGraphics Plus 2.1 programs.

**Results:** The experimental investigations of the analgetic action indicated the analgetic potential under mono-medication of paracetamol was 62%. Under mono-medication of caffeine was 60%. And under administration of pharmacological composition of paracetamol and caffeine was 67%. While studying of the antipyretic action the maximum elevation of temperature in the control group was evidenced during the 4<sup>th</sup> hour of the experiment to  $39,12 \pm 0,11^{\circ}\text{C}$ . Hyperthermia remained for 7 hours of the experiment going down to  $37,07 \pm 0,08^{\circ}\text{C}$  at the end of the experiment (24 hours later). However, administration of paracetamol an hour before the maximum elevation of temperature according to the methodology didn’t lead to the peak of temperature. Under administration of caffeine the peak of temperature elevation was evidenced and increasing of temperature indexes went to  $39,03 \pm 0,16^{\circ}\text{C}$ . Under combined action of paracetamol and caffeine the peak of elevation of temperature wasn’t evidenced in one hour after administration of composition. Gradual decrease of temperature was observed during last measures after 2 and 3 hours after the administration of the composition.

**Conclusions:** 1. Experimental investigation of the analgetic action (peripheral genesis) indicates that under mono-administration both of caffeine and paracetamol and of administration of their composition leads to a reduction in the number of cramps compared to a control group, that reinforces the applicability of this composition. 2. Caffeine potentiates the analgetic and antipyretic action of paracetamol.

**Ippolitov D.A.**

**ESTIMATION OF RISK OF ALZHEIMER’S DISEASE AND OTHER  
DEMENTIA FORMS IN KHARKIV POPULATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Medical Biology**

**Introduction.** Alzheimer’s disease (AD) is the most common form of dementia and possibly contributes to 60-70% of cases. Rate of AD is substantially increased among people aged 65 years and older, with progressive decline in memory, thinking, language and



learning capacity. The pathophysiology of AD is related to the injury and death of neurons, initiating in the hippocampus brain region that is involved with memory and learning, then atrophy affects the entire brain. In AD patients the aggregation of amyloid beta ( $A\beta$ ) into amyloid plaques outside neurons, tau protein and P-tau accumulation is observed. There are three risk factors of AD development: age of 65 and older, hereditary factors, environmental conditions. The WHO 2012 Report “Dementia: a public health priority” estimates there currently are 35.6 million people living in dementia worldwide, but there is no official statistics of AD in Ukraine. As the world population ages, the frequency is expected to double by 2030 and triple by 2050. Unfortunately, neither effective diagnostics nor cure of AD have been developed yet. AD is usually diagnosed by physical and neurological tests, and checking for signs of intellectual impairment through standard tests of mental function.

**The purpose** of the research was to compare the efficiency of different AD standard tests and to estimate the rate of AD and other dementia forms in Kharkiv population.

**Material and methods.** The participants were ranged into four groups of 50 people by the age: 17-25 year old, 30-40 year old, 55-65 year old and 65-75 year old. The Mini-Mental State Examination (MMSE) and clock drawing test have been used to estimate cognitive dysfunctions.

**Results.** Fifty percent of participants of each group were women, except of the eldest one with sixty-six percent of women. In the youngest group they had attained an average of 13.2 years of education, but in the other groups the participants had 14.8 years of education. In the youngest group 1 participant had the score of 23 in the MMSE, but in the elder groups their number increased to 2, 2 and 4 respectively. The clock drawing test has been revealed the only 2 participants of the eldest group with questionable dementia. Certainly, AD and other dementia forms should be differentiated from depression and normal age-related decline in cognitive function, which is more gradual and associated with less disability.

**Conclusion.** It has been proved the risk of Alzheimer’s disease and other dementia forms development in Kharkiv population by the easy administrated standard tests.

**Isaeva I.N., Bulynina O.D., Sokol E.N., Vasylieva O.V.**  
**STABILOMETRICS PECULIARITIES IN YOUNG PEOPLE WITH**  
**DIFFERENT TYPES OF FUNCTIONAL ASYMMETRY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The issue of muscle tone asymmetry is a very interesting problem which still should be studied. This question is one of the aspects of the topical issue of twoness work of cerebral hemispheres. There is much more information on arms asymmetry than on asymmetry of legs. There are data according to which legs are not equally strong and the dominance of the left leg grows with age. Despite great interest of many authors to the encephalic asymmetry studies, these data are of contradictory and fragmentary nature and can’t shape a full picture of the gist of the problem.

**Aim:** we aimed at studying the relationship between stabilometrical reactions and type of functional asymmetry.

**Materials and methods:** The 136 students of KNMU 2 course have been examined. Control group includes 48 persons with a right type of functional asymmetry (RTFA). Comparison group consists of individuals with a left type of functional asymmetry (LTFA) -



42 persons, a person with mixed type of functional asymmetry (MTFA) - 26 people and those with socio-modified type of asymmetry (SMTA) - 20 persons. In the course of study a complex of techniques was used: exercise tolerance was assessed with the help of the cycle ergometer test with load dosage (400 W for midgets, 200 W for girls) at constant pedals rotary speed 60 rpm, the degree of the functional asymmetry was defined in complex: with the help of the questionnaire (subjectively) and objectively – when assessing the ability to keep balance standing on one foot with eyes closed (cycle ergometer test).

**Results:** According to the results of cycle ergometer test the highest level of exercise tolerance is observed in individuals with LTFA (142.1 sec.), individuals with MTFA and SMTA show more or less equal results (125.1 and 125.3, correspondingly), and the last follow the individuals with RTFA (111.5 sec.). The showings of the cycle ergometer test, which is based on the effectiveness of the central equilibrium control and muscle tone distribution, were distributed at rest in the following way: the most significant encephalic asymmetry of legs was demonstrated by individuals with SMTA (58.2%), and the least by individuals with RTFA (43.0%). Individuals with LTFA and MTFA had intermediate showings (46.0% and 48.3% correspondingly). Right after physical exertion individuals with MTFA showed the most significant functional asymmetry of legs (53.0%), while the least asymmetry was displayed by individuals with SMTA (41.2%). Individuals with LTFA and RTFA had intermediate showings (42.4% and 43.3%, correspondingly). It was found that 2 minutes after relaxation individuals with MTFA also showed the most MTFA of legs (51.1%), while the least was shown by individuals with LTFA (38.2%). Individuals with RTFA and SMTA had intermediate showings (45.4% and 39.7%, correspondingly).

**Conclusion:** 1. Individuals with Left type of functional asymmetry have the highest physical endurance. 2. Young people with Socio-modified type of asymmetry at rest showed the most significant encephalic asymmetry of legs. 3. Individuals with Mixed type of functional asymmetry, compared to individuals with socio-modified type of asymmetry and Left type of functional asymmetry, showed the most significant encephalic asymmetry of legs right after physical exertion and in two minutes after the rest.

**Izmaylova L.V., Kashtan K. P., Andrienko V. I.**  
**VENTRICULAR SEPTAL BLOOD SUPPLY**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Human Anatomy**

**Aim.** This paper studies the sources of blood supply to the interventricular septum and the distribution of vessels in its various areas.

**Material and methods.** The study found that the septum of the heart, in most cases blood supply from both of the coronary arteries. In 25 of 96 observations occurred septum of the heart blood flow only through the branches of the left coronary artery. Arteries that are sent to the septum of the heart, away from the front and posterior interventricular branches of the coronary arteries on all of their length. From anterior interventricular artery to the septum of the heart follow from 18 to 25 branches, which average diameter - 2-2.5 mm, then back - 10-18 mm. The diameter of these arteries varies between 1.5 to 1.8 mm.

**Results.** These arteries (septal branches of the coronary arteries) penetrates the septum from its front (anterior descending artery branches) and back (posterior interventricular artery branches) departments. Septal branches starting from the left anterior descending artery, can be divided into 3 groups: upper, middle and lower. Upper interventricular artery



in an amount of 5-8 away from primary department anterior interventricular artery, has diameter 1.5-1.8 mm. They are distributed in the ventral area of the upper septum. The average front septal branches in the amount of 8-13 begins at the middle parts of the interventricular sulcus. They had a diameter of 1.8-2 mm and followed in the anteroposterior direction, being distributed in the middle third of the ventral septum. Lower septal branches in an amount of 13-15 started from the left anterior descending artery in the cardiac apex. With a diameter of 0,13-0,35 mm these arteries, joining in the apex of the heart in his septum, had ascending direction. Posterior interventricular artery sends to the septum from 10 to 18 branches average diameter is 0.35-2 mm. From the initial posterior interventricular artery of the partition goes from 3 to 5 short branches, which entered into a partition, take the downward direction. On the remaining length from placed in the artery enters the partition 8-10 branches are distributed in the middle and lower back area of her department.

**Conclusions.** Thus, to the interventricular septum of the heart enter from 35 to 45 the arterial branches. In the thick of the interventricular septum the branches of anterior and posterior interventricular artery widely anastomose with each other, forming rete, hinges which have a polygonal shape and extended along the muscle bundles.

**Jama Ikram Abdulrahman, Panasenko V.A.**

### **MORPHOLOGICAL FEATURES OF UNICELLULAR GLANDS OF THE GASTROINTESTINAL TRACT**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** Most glands are formed during development by proliferation of epithelial cells so that they project into the underlying connective tissue. Some glands retain their continuity with the surface via a duct and are known as exocrine glands. Other glands lose this direct continuity with the surface when their ducts degenerate during development. These glands are known as endocrine glands.

**Aim:** To study unicellular glands of the GI tract, and to study the localization (anatomy) and the function of this glands .and to know some complication that can infect it

**Materials and methods:** biopsy for patient with diabetes mellitus and clinical renal impairment

**Results:** For the patient who suffer from diabetes mellitus had disturbance of the pancreas gland, and the complication was hereditary.

**Conclusion:** There are many causes of the disorders of the GIT glands for example genetic disorders, in addition to the possibility of a chronic inflammatory immune disease and the incidence of tumors.

**Kalashnikova O.S.**

### **SURGICAL TREATMENT OF THE POSTSPLENECTOMY SYNDROME**

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**Introduction.** Post-splenectomy syndrome is a group of symptoms and signs that often occur after the spleen removal surgery (splenectomy). This article is devoted to the prevention method of such complications as destruction of red blood cells, overwhelming post-splenectomy infection (OPSI), thrombocytosis, atherosclerosis, pulmonary hypertension. The most common complication of splenectomy is immunodeficiency that occurs in 7-10% or cases.



**Results.** The splenectomy can be combined with spleen tissue autotransplantation. To prevent immunodeficiency. To achieve clinical effect it is necessary to implant at least 1/5-1/6 of the organ and the transplanted pieces have to be of a certain size: too small pieces will dissolve completely so autograft would be ineffective; too big pieces undergo necrosis with subsequent abscess formation. Spleen tissue must be transplanted together with the stroma and connective tissue capsule, which serve as a scaffold for the repair of the lymphoid tissue. Autotransplantation procedure is as follows. One places the removed spleen into a sterile bowl and, holding it with the left hand, performs 4-5 transverse sections through the entire uninjured parenchyma, including the capsule. The slices should not exceed 5 mm in thickness. One places the 4-5 fragments thus obtained, with dimensions 4x4x0,5 cm, around the perimeter of the greater omentum 10-12 cm from its edge, and placing the free edge of the omentum on the top of the fragments, fixes them in a pocket formed in this way with several interrupted catgut sutures.

**Conclusions :** The presented operation will reduce the incidence of splenectomy complications, and following the described operation procedure will reduce the number of operative and postoperative complications.

**Kalyan V.V.**

### **THYMUS CORTEX THYMOCYTES QUANTITY OF THE RATS FED ON GENETICALLY MODIFIED SOYBEANS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Medical biology department, Pathological anatomy department**

**Introduction.** Advances in biotechnology have resulted in an increasing number of genetically engineered foods, and, among these, soybean is one of the most widespread. Foods produced through agricultural biotechnology should be assessed for their potential health risks, in particular allergenicity. Thymus provides organism response to foreign substance. There are not enough research data demonstrating histological thymus changes in rats fed on genetically modified soybeans.

**The purpose** of this work is to evaluate thymus cortex thymocytes quantity of the rats fed on genetically modified soybeans.

**Materials and methods.** Mature female rats were used for this study. The first group rats (gr. Control) were fed on standard vivarium diet. Diet of the group soya (gr. Soya) females included unmodified kind "Standard" soybeans, which provided 50% of protein requirement. The third rat group (gr. GMO) consumed genetically modified soybeans (kind «Roundup Ready» line 40-3-2, which contains genes cp4epsps and regulatory elements – promoter E35S and terminator NOS). Consumption of specific diet has been lasting for 6 months, after that, animals were removed from the experiment by decapitation under light ether anesthesia at the age of 9 months. The preparing of histological sections was carried out by conventional methods. Histological sections (5-6 µm width) were stained by PAS-method. The thymus histological structure has been studied under a microscope "Axiostar plus" (Zeiss, Germany) with magnification x100, x400. The thymus cortex thymocytes quantity has been counted on electron photos in particular square with area of 1200 µm<sup>2</sup>.

**Results.** Animals of gr. Control in the thymus histological structure do not have any signs of stimulation or suppression of organ: there are small lobules which consist of a medullary and cortical portion and which are divided by interlobular septums. Each lobule has an outer, darker staining cortex and an inner, paler staining medulla. The stroma is



composed of special thymic epithelial cells made network. The thymus histological structure of gr. Soya animals is characterized by signs of stimulation of the gland functioning. In the medullary portion, epithelioreticular cells are coarser than in the gr. Control. There are numerous areas of epithelial cells proliferation – Hassall's corpuscles which are well represented and formed by active cells. The relative proportion of the cortex in comparison to the medulla is small. It may indicate thymocytes outflow from cortex, what is confirmed by a significantly less cortex thymocytes quantity  $54,4 \pm 1,7$  in comparison with gr. Control animals  $62,8 \pm 2,1$ ,  $p < 0,01$ . There is absence of edge between cortex and medulla portions on the thymus sections in the gr. GMO, what may be indicator of thymus atrophy and accidental thymic involution. Cortex is very narrow in comparison with medulla, what may be explained by a significantly less cortex thymocytes quantity  $41,7 \pm 1,1$  compared with gr. Control animals  $62,8 \pm 2,1$ ,  $p < 0,001$ . Against the background of epithelioreticular cells hyperproliferation voids in the medulla appear. Keratinised and cystic changed thymic corpuscles are observed. There are seen some fuchsinophilic collagen fibers in the parenchyma what may indicate thymus sclerosis. There are a lot of macrophages in the medulla. Probable thymic reduction may be confirmed by uneven organ edges of capsule.

**Conclusions.** Thus, in thymus histological structure of female rats there are signs of stimulation of the organ functioning after long-term consumption of specific diet (unmodified soybeans and genetically modified soybeans) which has been lasting for 6 month. In addition, the usage of genetically modified products has led to overstrain of organism's defense strength, and morphological confirmation of that is development of accidental thymus involution.

**Korobchanska A. B., Kolisnik I.L., Vasura V., Romanenko V.**  
**MORPHOLOGY OF THE ADRENAL GLANDS UNDER THE INFLUENCE**  
**OF PHOSPHORUS**

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**Department of Human Anatomy**

**The aim** of our study was to investigate the structural features of the adrenal glands of rats under the influence of phosphorus detergents, one of the most common ecoantropogenic factors.

**Material and methods.** This morphological study performed on Wistar rats that within 30 days exposed Polifos 124 Tm (substance injected with a metal probe into the stomach). Changes were studied on paraffin sections using conventional histological and histochemical methods (hematoksylyn-eozin, pikrofuksyn by Van Hizonu, Feulgen-Rosenbeka reaction, Brush reaction, the Daniels reaction, and lipid staining on frozen sections by Sudan III).

**Results.** It is established that exposure to phosphate detergents all zones of the cortex, especially the medullar substance show signs of hypertrophy and hyperplasia of even moderate catecholaminsecreted cells. Along with that there are massive focuses of resorption of cells of medullar substance. The nuclei of the cells of the cortex are light, poor by chromatin. While in the cytoplasm of cells of all three zones of the cortex observed pronounced tenden cyto reduce of sudanin clusions, especially in fasciculate zone. The cells of medullar substance increased in size, have illuminated nuclei, that poor by chromatin and



weak response to DNP. Cytoplasm of cells also enlightened, contains small sudan granules which located diffusely through out the all cytoplasm. It turns out poorly expressed stratification of layers of medullar substance.

**Conclusion.** Described changes that associated with a expressed functional tension of cells especially glomerular and fasciculate zones of the cortex and of medullar substance. We found changes in the adrenal glands which can also be an indicator of strengthening of compensatory-adaptive processes in the organ, which is under distress.

**Korobchanska A. B., Kolisnik I.L., Vasura V., Romanenko V. S.**  
**MACRO-MICROSCOPIC ANATOMY OF EXTRAORGANIC NERVES OF  
THE ADRENAL GLANDS**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of human anatomy**

**The purpose** of this study was to investigate of individual anatomical variability and topography of nerves of the adrenal glands middle-aged people that performed by macro-microscopic preparation on the complexes of organs at the upper storey of the abdominal cavity of dead bodies for V.P. Vorobyov.

**Results.** These preparations allowed us to identify and later on their basis present in the form of anatomical schemes, two main forms of variability of the structure of the main sources of innervation of the adrenal glands – abdominal plexus: dispersed and concentrated. Dispersible form of structure of the abdominal plexus was prevailed in our preparations (21 preparations). We identified the concentrated form of structure of the abdominal plexus in fewer (9 preparations). For disperse form of structure of the abdominal plexus is characterized the presence of 6 and more ganglions in polygonal shape that are placed asymmetrically on the right and left sides of the abdominal aorta. In this form of structure of the human abdominal plexus we additionally described two variants of structure of nerves of the adrenal glands. The first variant - 12 preparations (54% of cases) the prevalence of extraorganic nerves (10 or more trunks) of the left adrenal gland. These second variant - 9 preparations (46% of cases) the prevalence of outside organ nerves of the right adrenal gland. On preparations of concentrated form of structure of the abdominal plexus the last presented by 2 - 4 large ganglions that have semilunar shape. In this case, there is one variant of structure of nerves of the adrenal glands – the prevalence of number of extraorganic nerves of the left adrenal gland.

**Conclusions.** Thus, analyzing the received materials of macro-microscopic anatomy of extraorganic nerves of adrenal glands of human, we can conclude that their anatomy depends on the shape of structure, quantity and features of their sources of blood supply, as well as the forms of structure of the main source of innervation – of the abdominal plexus.

**Kotlobaj M., Ladnaya I.V., Krivchenko Yu. V.**  
**PECULIARITIES OF THE INNERVATIONS OF THE SUPRAHYOID AND  
INFRAHYOID MUSCLES OF THE NECK AND THEIR PRACTICAL  
IMPORTANCE**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Human Anatomy**

**Introduction.** Study of the problems of skeletal muscles innervation considering an individual variability of their neuromuscular apparatus has great importance in connection



with development of neuro- and myoplasty, that are especially based on microsurgery technique.

**Material and methods.** The research was carried out on 55 corpses of people at the juvenile, mature and old age. The macromicroscopic, histological and morphometric methods of research were used in the work. 225 series of microscopic preparations of the nerves were studied.

**Results.** Our research has shown some regularities in the extraorganic and intraorganic innervations of the muscles and the character of their intratruncal structure. Special emphasis was given to the study of the relations between metric indications of the given group of muscles and quantitative characteristics of the myeloarchitectonic of their nerves. The correlation between individual peculiarities of the structure of the lower jaw and the configuration of the nerve branching in the mylohyoid muscle was determined. In a dolichomorphic lower jaw mainly the magistral type of the branching is observed, in a brachymorphic one the scattered type is observed and in a mesomorphic the mixed or scattered types are present. Innervation of the infrahyoid muscles of the neck in studied preparations was from cervical loop. Two main forms of position of cervical loop relatively to the internal jugular vein were marked. First – position of the cervical loop was externally to the internal jugular vein. Second – position of the cervical loop was internally to the internal jugular vein. The cervical loop was absent in two preparations. We found that cervical loop had inferior position in persons with short neck (8 preparations) and mainly cervical loop had superior position in persons with long neck (12 preparations). There was asymmetry in formation of cervical loop and nerves which originate from it (from left and right sides). The sizes of muscles changed depend on shape of the neck. Sternohyoid muscle was longer in persons with long neck, than with short one. We revealed that sternohyoid muscle was innervated by one or three nerve branches, from cervical loop. Three variants of innervations of this muscle were determined. The investigation has shown that size and volume of muscles depend on the shape of a lower jaw and a neck. Individual variability in the topography and in the amount of nervous branches which come to the muscles was observed in the innervation of the studied muscles. Constant sources of innervation have been determined and additional sources of innervation have been identified. Intermuscular nervous connections were found between the nerves of the muscles of the right and left sides. Peculiarities of the intramuscular nerve branching and the regions of their peak concentration for each of the nerves have been determined.

**Conclusion.** The our findings may be of importance for solving the problems in operative intervention in the region of the neck.

**Kotlyk Yu., Sokol E.N., Vasylieva O.V., Kovaliov M.M.**  
**HEALTH RESEARCH IN PERSONS WITH INDIVIDUAL**  
**CHARACTERISTICS OF DIURNAL CHRONOTYPE**  
**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** All life on our planet is exposed to rhythmic processes. Biorhythms and chronotype are connected with the rhythm of external influences, which are inherent in any living organism. This allows organisms to live in harmony with the natural cyclical processes. Person's health and ability to work dependent on the optimal interaction of individual biorhythm and external rhythm environment directly. According to scientific



literature many researchers pay attention to the differences chronotype people who are engaged in mental and physical labor. Therefore important to study the effectiveness of adaptation to intellectual and physical activities of learning young people with different types of individual biorhythms.

**Aim:** the evaluation of mental and physical efficiency of students, depending on their individual biorhythms. The task of the study was to identify individual features daily chronotype of students and the effectiveness of their organism adaptation to intellectual and physical activities at the beginning and the end of the school day.

**Materials and methods.** The study was conducted on 2nd year medical students KhNMU who were divided into three groups according to the nature of chronotype: "arhythmic", "larks" and "owls" by G.Hildebrandt method. Physical and mental efficiency effectiveness was evaluated in each group, using the cycle ergometer and Kraepelin test.

**Results.** According to the study of individual chronotype students were divided: 48.7 % "arhythmic" who have the same efficiency in the morning, afternoon and evening. The results of the survey in this group showed 89.5 % of the students involved in sports, the cycle ergometer results have been most adapted to physical stress. However, athletes studies have shown that under the influence of standard load maximum increase heart rate noted in 13-14 hours, this period is considered the most unfavorable to perform strenuous exercise. Maximum efficiency in the afternoon showed the so-called "owls" who totaled among surveyed 32.4%; 68.9 % of the students showed the highest efficiency of the Kraepelin test in this group. The remaining 18.9 % of the students were in the group "larks", which have the efficiency at the first half of the day. Effectiveness of adaptation to the physical and mental stress in this group are distributed approximately equally: 54.7% - adapted to physical stress; 45.3% more adapted to the intellectual challenge.

**Conclusion.** Recommendations on the optimal distribution for the day classes mental and physical labor depending on the individual biorhythms profile were substantiated. Depending on chronotype recommendations were taken: the alternation of activity and rest phases, types of activity (intellectual or physical), the quality of rest (active, passive), individuality biorhythms of sleep. Recommendations were made for the purpose of the body use effective of its energy resources and backup capabilities for the day and for the full restoration during their sleep.

**Kotvitskaya V.**

## **CARDIOVASCULAR DISEASES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Human Anatomy**

**Introduction.** Cardiovascular diseases (CDVs) are the main reason of death in all over the world: there is no other reason that causes so many deaths per year than CVDs. Moreover 80% cases of death from CVD in the whole world takes place in countries with low and middle income.

**Results.** The cardiovascular system consists of the heart, blood vessels, and the approximately 5 liters of blood that the blood vessels transport. Responsible for transporting oxygen, nutrients, hormones, and cellular waste products throughout the body, the cardiovascular system is powered by the body's hardest-working organ — the heart, which is only about the size of a closed fist. The heart is a muscular pumping organ located medial to the lungs along the body's midline in the thoracic region. The bottom tip of the heart,



known as its apex, is turned to the left, so that about 2/3 of the heart is located on the body's left side with the other 1/3 on right. The top of the heart, known as the heart's base, connects to the great blood vessels of the body: the aorta, vena cava, pulmonary trunk, and pulmonary veins. Blood vessels are the body's highways that allow blood to flow quickly and efficiently from the heart to every region of the body and back again. The size of blood vessels corresponds with the amount of blood that passes through the vessel. There are three major types of blood vessels: arteries, capillaries and veins. Blood vessels are often named after either the region of the body through which they carry blood or for nearby structures. For example, the brachiocephalic artery carries blood into the brachial (arm) and cephalic (head) regions. There are 2 primary circulatory loops in the human body: the pulmonary circulation loop and the systemic circulation loop.

Smoking, unhealthy diet and obesity, lack of physical activity, high blood pressure, diabetes and increased lipid are the most spread risk factors of heart diseases. In addition males are exposed CVDs more often than females. This is due to the physiological and psychological characteristics of the female body. The hereditary factor also plays an important role. Based on the foregoing, the main task of modern medicine becomes effective prevention and treatment of heart diseases. In this regard, new techniques have been developed for the detection of pathologies of cardiovascular system, new and effective devices have been created, methods of surgical operations have been improved. Besides the international community is concerned about the issue of raising the level of medicine in low- developed countries. High-performance events made by WHO which deal with CVDs may be practicable in all conditions, even with limited resources.

**Conclusion.** Heart and vascular diseases are quite extensive and difficult to understand topic, but at the same time, everybody should be aware of the risk factors and preventive measures. Remember, a healthy lifestyle is the key for keeping your cardiovascular system in excellent condition.

**Kurinnyi V., Liermontov O.**

### **INDIVIDUAL TOPOGRAPHY OF MAIN DIAPHRAGMATIC OPENINGS**

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<sup>2</sup>Kharkiv National Medical University, Department of Operative Surgery and Topographic Anatomy

**Introduction.** Individual topography and anatomical variability of the human diaphragm is still important for radiologist to identify main structures and for the surgeon to perform operation on the diaphragm.

**Objective.** Topography of main diaphragmatic openings.

**Material and Methods.** The present study was performed on 40 series of CT images (Toshiba Aquilion 16) that were analysed with Vitrea software. Square of central tendon, angle and distance between the main diaphragmatic structures such as left and right crura, esophageal, aortic and vena cava openings were identified according to the sex, age and body type.

**Results.** Inferior vena cava opening was oval in shape, its diameter was from 14,2mm to 35,7mm. The least diameter was identified in female with asthenic body type. The largest opening was in male with hypersthenic body type. 75% of specimens were presented by the size of inferior vena cava opening from 19 to 25mm. Diameter of the round shaped



esophageal opening was from 6,6 to 16,8mm. The least diameter was identified in male with hypersthenic body type. The largest opening was in male with hypersthenic body type too. 75% of specimens were presented by the size of esophageal opening from 10 to 13,8mm. Diameter of the round shaped aortic opening was from 16,2 to 29,4mm. The least diameter was identified in female with hypersthenic body type. The largest opening was in male with hypersthenic body type. 75% of specimens were presented by the size of aortic opening from 19 to 26mm.

**Conclusion.** Parameters of the diaphragmatic openings varies in wide range. The number of specimens is not enough to identify relation between topography of main diaphragmatic openings and body type. Relation between topography and age is still ambiguous. Presented results can be used in elective surgery of diaphragm.

**Lomakina A.O.**

### **PATHOGENIC INFLUENCE OF CLOSTRIDIUM OEDEMATIENS TOXINS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Microbiology, Virology and Immunology**

**Introduction.** Gas gangrene is an anaerobic infection that is characterized by myonecrosis, tachycardia, fever and full intoxication of the organism. It is caused by several microorganisms of class Clostridium, and one of them is Clostridium oedematiens. Clostridium oedematiens is a Gram-positive, endospore-forming, obligate anaerobic bacteria of the class clostridia. It is ubiquitous, being found in the soil and faeces. Cl. oedematiens culture can be classified by its morphology to either type A or type B or D; by, sensitivity to air and the fall in pH in cultures containing glucose, maltose or glycerin. Growth in culture proceeds through 3 stages: initial growth wherein no toxin is produced; vigorous growth wherein toxin is produced; and spore formation wherein endospores are formed and toxin production decreases. It is suggested that type C may be type B that forms spores more readily so does not go through the toxin-production stage. Gas gangrene is very common among patients of surgical department. That is easily spread from one patient to another. Infected people need immediate treatment because of high speed of development of its symptoms. That is why the investigation of its pathogenic effect is always of current interest.

**Results.** Six antigenic components have been identified in toxic filtrates from Clostridium oedematiens, which have been designated  $\alpha$ ,  $\beta$ ,  $\gamma$ ,  $\delta$ ,  $\eta$  and  $\zeta$ .  $\alpha$  is the classical lethal toxin of Cl. oedematiens and  $\beta$  and  $\gamma$  are haemolytic lecithinases,  $\beta$  being certainly necrotizing;  $\delta$  and  $\zeta$  are haemolytic,  $\delta$  being oxygen labile; and  $\zeta$  is probably responsible for pearly layer formation. Type A strains of Cl. oedematiens produce  $\alpha$ ,  $\gamma$ ,  $\delta$  and  $\eta$ ; type B strains produce  $\alpha$ ,  $\beta$  and  $\zeta$ ; type C strains produce none of these components. In the identification of the various types of Cl. oedematiens, methods based on the properties of the  $\beta$ ,  $\gamma$  and  $\eta$  components give more consistent and clear-cut results than those depending on morphology, colonial formation or fermentation reactions. Filtrates from Cl. oedematiens type A and type B often contain a lethal toxin, which is thermolabile, produces on injection into animals the gelatinous pink-stained oedema of connective tissue and muscle characteristic of Cl. oedematiens infections. Both Cl. oedematiens type A, type B and type D produce haemolysins, and the literature contains evidence that some of these are distinct from the lethal toxin and that the type A haemolysin complex is different from that produced by type B and D, it could be confirmed by cross neutralisation of haemolysin in mature cultures in



sugar-free media. The type and severity of the disease caused depends on penetration of the tissues. The epithelium of the alimentary tract, in general, provides an effective barrier to penetration. However, spores may escape from the gut and lodge in any part of the body and result in spontaneous infection should local anaerobic conditions occur. *Cl. oedematiens* toxin administered intravenously produced the following picture: a latent period of one or more hours without noticeable change, followed by a progressive rise in peripheral vascular resistance, a fall in cardiac output, and eventually a decline in blood pressure to shock levels of death. Edema and hemorrhage in the lungs and visceral organs were constant findings. *Cl. oedematiens* toxin produced massive local edema, hemoconcentration, and eventual death, when administered intramuscularly in small dosage.

**Conclusion.** Experiments on the effect of *Cl. oedematiens* toxins have demonstrated that the dosage, rate and route of administration of toxins determine the type of effects on organism. Rapid Intravenous administration of a large dose of toxin is a situation far different from the slow elaboration of the toxin by organisms multiplying in a damaged muscle. Intramuscular injection of a small, sub-lethal dose of toxin appears to approach the clinical situation most closely. Here the effect of the toxin is principally local, resulting in edema and hemoconcentration.

**Lomakina A.O.**

## **COMPARISON OF TYPES OF AORTIC VALVE SURGERY**

**Kharkiv national medical university, Kharkiv, Ukraine**

### **Department of Operating Surgery and Topographic Anatomy**

**Introduction.** Aortic valve disease is a condition in which the valve between left ventricle and aorta doesn't work properly. There are different reasons of aortic valve damage. They vary from a congenital defect and the natural aging process, to infection or scarring. This damage may lead to aortic insufficiency, the state when aortic valve leaks and blood flows back through it into the left ventricle, or to aortic stenosis, when the aortic valve becomes narrowed and obstructs the blood flowing through it. Once a valve becomes sufficiently damaged, it may need to be replaced, in order to prevent heart failure and premature death.

**The aim** of this study is to compare traditional open heart surgery on the aortic valve replacement (AVR) with percutaneous aortic valve replacement (PAVR).

**Results.** The operation to replace an aortic valve takes 2-3 hours to perform. The damaged valve is removed and replaced with either a "tissue" valve or a "mechanical" valve. The operation itself requires general anesthesia. The surgeon opens the chest by dividing the sternum. Tubes and cannulae are inserted into the heart and major blood vessels surrounding the heart in preparation for cardiopulmonary bypass with the heart-lung machine. The heart is stopped, and the aorta is clamped. This permits the surgeon to safely open and operate on the heart without blood pumping thorough it. The surgeon then opens the aorta and exposes the damaged aortic valve. The valve is then removed and non-absorbable sutures with bolsters or "pledgets" are placed through the rim or "annulus" of the valve. These sutures are then brought through the sewing ring of the valve, the valve is lowered into position, and all the sutures are tied. The aorta is then sutured closed, the clamp on the aorta is removed, and all remaining air is evacuated from the heart. As the heart



regains its strength, the patient is weaned from the heart-lung machine and the heart and lungs resume their normal functions. Open heart surgery typically follows by a two to three month recovery period. PAVR is a promising new treatment for patients who are not ideal candidates for traditional open heart surgery. The surgeon starts by making a small incision in the upper leg and then inserting a catheter, outfitted with a deflated balloon, in the femoral artery. The catheter is guided up into the chambers of the heart, where the balloon is inflated to open up the diseased aortic valve. This catheter is removed and a second catheter, outfitted with a synthetic valve crimped around a deflated balloon, is moved into the dilated opening. After positioning the catheter, the surgeon inflates the balloon to expand the new valve and secure it into place. The entire procedure, performed under local and/or general anesthesia, takes 90 minutes, which is followed by a few days of recovery. A total of 2,309 references were identified through the five electronic database searches. All-cause mortality was not significantly different between the PAVR and AVR treatment groups during the perioperative period - 7.5% vs. 6.9%. Similarly, no significant differences were identified at 12 months - 18.9% vs. 16.0%, or beyond 12 months - 28.8% vs. 30.1%. Cardiovascular related mortality was also not significantly different between PAVR and AVR during the perioperative period - 3.7% vs. 3.6%, 12 months - 12.8% vs. 11.3, or beyond 12 months - 17.7% vs. 15.5%.

**Conclusion.** An aortic valve replacement carries a risk of complications, some of which can be life-threatening. Although, the risk of dying is much higher without surgery. Thereby, the type of AVR is the choice of surgeon and patient. As the research revealed that both PAVR and AVR are almost equally safe and effective.

**Lupyr Marina, Jabbarova Aynur**

### **AGE CHARACTERICS OF THE EXTRACRANIAL PART OF HUMAN'S FACIAL NERVE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** There is not enough fully rejected ontogenetic peculiarities of morphology of the facial nerve. Important and insufficiently developed question is intraorganic distribution of branches of the facial nerve in the mimic muscles.

**Materials and methods:** Macromicroscopic method.

**Results:** Study age characteristics of the facial nerve of the person shows that at different ages there is a different branching pattern of the nerve. On the following of our preparations we see a fit to distinguish 2 basic stages in development of facial nerve certain character of his branching is peculiar that. First stage: from the early period of embryogenesis (the appearance of the trunk of the facial nerve) and before the birth; the second stage: after birth through old age. In each stage of development of the facial nerve person can distinguish between periods, reflecting the change in the topography of the trunk and following branches, relationships, and vzaimootnoshenii muscles official expression, as well as with front part of the skull. Undoubtedly, the selection of stages and periods in the development of the facial nerve, to a certain extent conditional, thematisieren. In the first period of development (embryos 10 and 12mm length ) facial nerve is divided only on the following branches. The second period is the germ of older age ( starting with 16mm length ) facial nerve is already divided into basic and end branches. Since dogdogmating age, in embryo, defines all peripheral branches of the facial nerve, and tekuteku some connection facial nerve with trigeminal nerve and cervical plexus. The third period is the foetus of



three months and up-clearly define the relationships between the peripheral branches, as well as its links with other nerves. In this worst we first note the presence of asymmetrical placement of branches and its nerve. The fourth period - facial nerve is the foetus of four-month age - is divided into two main branches, rarely three and four. In the period observed variability of the peripheral nerve branches, especially cheek; there are also numerous links facial nerve troinicnogo. Sometimes they are placed on several levels. Fifth period – foetus 5-6 months of age, we observed significant differences in the pattern of branching main branches: so, in one case, a branch of the facial nerve had expressed the looping nature, in another connection between the branches were isolated. Sixth period - the foetus 7-9 months strenuously began to develop, in addition to the brain and facial skull. Part of the skull, which is reflected on the topography of the branches of the facial nerve, especially the bottom. In this age group is increasing variability of the peripheral branches, mainly cheek. Along with differences in the nature of branching observed variability in the internal structure of the nerve (the asymmetry beam structure nerve foetus 7 months old)

**Conclusion.** During all periods of development of changes in the nature of branching nerve occur in close Association with the growth and functional morphological differentiation of all the facial nerve-muscle system, and also with those changes skull, especially his facial part, which takes place in connection with age.

**Medyanyk E.A., Meshcheriakova I.P.**

### **EPIDEMIOLOGY OF HELMINTHIASIS IN UKRAINE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Helminthiasis , or worm infestation call a large group of diseases that are caused by parasitic worms . This is the most "mass" of the disease: everyone in his life at least once faced with this problem . Helminths can cause people to destroy various organs and systems that adversely affect human health , and to date statistics of these diseases , especially among children , makes not forget about their relevance .

**Results.** In the world today 342 species of helminthes are known. The World Health Organization found that in Ukraine there are about 30 species of parasitic worms. According to the Ministry of Health of Ukraine in our country every year officially registered cases of helminthiasis 300-400 thousands of cases 80 % are children . According to expert estimates, the true figure helminth infected tens of times higher. About the real propagation of helminthiasis in Ukraine can be judged by the number of anthelmintic drugs sold . According to research by the Ukrainian pharmaceutical company " Eksimed " true figure helminthisms registered annually in the country reaches 1-2 million. The most common are enterobiasis - 75%, ascariasis - 21% trichocephalosis - 3% , and opistorhoz , echinococcosis, dirofilariasis . Enterobiasis incidence among children who attend child care centers is 20% . Forecast incidence helminthiasis - unfavorable. Development of private households (private pig , krolevodstvo , growing vegetables , herbs , berries using neobezzarazhennyh sewage for fertilizer, cooking craze of Southeast Asian Nations) leads to pollution of soil, vegetables, fruits , meat and seafood infestation by helminths .

**Conclusion.** These data suggest the need to inform the public with frequent helminth , means catching the worms , their symptoms, possible complications , as well as methods of prevention. Helminthiasis and widespread increase in the number of patients require close attention to this issue specialists - parasitologists and general practitioners.



**Mezhenskaya K. A., Meshcheriakova I.P.**  
**STATISTICS OF HELMINTHIASIS IN THE WORLD AND IN UKRAINE**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Medical Biology**

**Introduction.** More, than an hour people in the world have parasitological invasion. The World Health Organization says, that there are more, than 4,5 billions persons, which are infected by parasitological diseases. “95-95% of people have parasites, but persons do not know about this”, – says informal literary sources in the USA and in Ukraine. The third place in the structure of morbidity took intestinal helminthiasis. Today 25% of people have helminthes, more than 100 million children have stunting and retardation. Every third person, who lives in Europe has helminthiasis. Helminthiasis of people are the most serious problem for medical science, because 99% of all parasites are helminthes.

**Results.** There are two millions of sick people every year in Ukraine, but the true number of them can be more than 22,1 millions. Official literature says, that there were 320 814 helminthiasis in 2004 in Ukraine, 240 003 (74,8%) of enterobiasis, 67 647 (21,08%) of ascariasis, 11 207 (3,5%) of trichocephalosis, also 256 684 (80%) helminthiasis have children. Every year frequency of helminthiasis increases, which rarely meet in Ukraine, but they are more dangerous for person's health.

In 2003 year was founded 499 cases of opisthorchiasis, in 2004 - 709; echinococcosis - 155 and 186; dirofilariasis - 79 and 104 cases, respectively. According to the Department of Health and Human Services of USA, the number of deaths, caused by parasitic diseases during the year, compared with those from cancer and stroke. According to the World Health Organization, about 50 million people who die each year in the world, more than 16 million deaths are due to infectious and parasitic diseases. The situation in our country much worse. Helminth infestations person is exposed even more than acute respiratory diseases, which are known to be at least once during the year sick almost every Ukrainian. Intestinal parasitosis, according to WHO, on the prevalence of tuberculosis are after. Such worms as opisthorchis, considered carcinogenic number one throughout the world, many worms are not much inferior to him in the carcinogenic effect. In some regions of Ukraine (Poltava, Sumy, Chernihiv), a population of more than 60% affected by helminthes. During the last 10 years dirofilariasis frequency was increased in 52 times. Except dirofilariasis, are increasingly common today is toxocariasis ( dog roundworm). Its eggs are not found in human feces, incidents of human toxocariasis are directly proportional to the number of dogs infected by this helminthiasis. Spread eggs of toxocara occurs at the soil is polluted with excrement of dogs. 1 gram of excrement sick dog can contain up to 40 million eggs of toxocara.

**Conclusion.** The most dangerous helminthes infestations for health of child. According to information of official statistics in our country transferred helminthes infestations 200-300 thousands children in a year. So, great importance in solving the problem of helminthiasis plays improving a sanitary knowledge of every human. Performance the most elementary rules of personal hygiene in many times reduced risk of helminthes infestations, so it's necessary improve health education among the population, focus on the necessity of mandatory diagnostics and treatment helminthiasis in persons, who are at the risk of infections.



**Miroshnichenko A. A., Perepelitsa T.S.**  
**CRANIOMETRICAL FEATURES SKULLS PEOPLE ADOLESCENCE**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Anatomy**

**Introduction:** The development of neurosurgery, in connection with the detail design of the skull bone in the brain and facial divisions, based on the teachings of individual anatomical variability, especially in adolescence.

**Aim:** To study the development of the facial features and brain, to determine the individual variability in postnatal ontogenesis people adolescence.

**Materials and methods:** The investigated objects were the two human skulls youthful age (males and females 16 and 21 years). Applied the following methods: craniometry of the native preparations.

**Results:** During adolescence there is a further stabilization craniometric indicators head and skull. So, head length in males is 17,0-19,6 cm; maximum length of the skull cavity 15,2-16,8 cm; 13,2-15,9 cm width of the head; head height 14,0-15,2 cm; cephalic index 71,1-87,5 cm. Accordingly, these parameters in females: head length - 16,0-17,3 cm; cranial cavity length 14,3-15,2 cm; head width 13,5-14,5 cm; head height 13,3-15,1 cm; cephalic index 78,0-91,2 cm.

**Conclusions:** It was determined that all of the cranial cavity have a certain range of age differences. Just that people skull adolescence has expressed individual anatomical features, confirms the measurements that must be taken into account during the various neurosurgical operations.

**Movchan Y.O., Moroz K.R., Izmailova L.V.**  
**MORPHOLOGICAL PECULIARITIES OF THE NERVES OF THE**  
**PERICARDIUM IN CASE OF CORONARY INSUFFICIENCY**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Human Anatomy**

**Introduction.** Coronary blood supply disturbance results in most cases from atherosclerotic changes and leads to constrictive processes. However, lesion of the coronary arteries by atherosclerosis does not always determine changes in the cardiac muscle. Except peculiarities of the intraorganic vessels of the pericardium, the nervous apparatus of the pericardial sac, which undergoes some changes in case of the coronary blood supply disturbance, must be taken into account.

**Materials and methods.** Intraorganic neuroplexuses of the pericardium, which are formed by the pneumogastric, sympathetic and phrenic nerves, have connections in common with the vessels, i.e. through the pericardial reflection with the nervous apparatus of the myocardium. The main vascular lines, which are responsible for supplying of the pericardium, are pericardiophrenic arteries located on the anterolateral surfaces of the pericardium, along the thoracic section of the phrenic nerves. Together they form neurovascular bundles situated in an anaxial way to the right and to the left. The right neurovascular bundle is close or at the root of the lung and the left one is located in front of the corresponding lung root. Due to this point the area of blood supply and innervation of the left neurovascular bundle is much bigger than that of the right one. On the specimens of the pericardium, which are totally stained, we can find a nerve plexus which is located in its



superficial layer. In this case a great number of nerves, which are situated either along the vessels, or independently, can be determined on the background of the dense vasculature. The latter ones are like trunks of different sizes which cross major and minute vessels in different directions. The nerve plexus of the pericardium situated in the superficial, friable, fibrotic layer sends a great amount of branches into the deep collagenous elastic layer where separate nerve trunks of different diameter are located. The intraorganic nerve plexus of the pericardium, which is in the friable fibrotic layer, and separate nerve tracts and fibers located in the collagenous elastic layer of the pericardium also display some reactivity conditions in case of difficulty of the coronary blood circulation owing to atherosclerotic changes. Reactive changes are found in the thick medullated fibers. The nerve fibers in the deep collagenous elastic layer form free nerve endings which branch according to cluster type. In the specimens, which were characterized by atherosclerotic changes, they also displayed increased argentophilic nature. In some specimens sharp induration of free branching endings was detected.

**Results.** These reactive changes, which are not so apparent on the side of the nerve apparatus of the pericardium, prove reversibility of this process that takes place as a result of oxygen deficiency of the tissues.

**Conclusion.** Therefore on the ground of the data we have obtained, it is possible to come to a conclusion that the nerve apparatus undergoes reactive condition. In this case induration of the nerve fibers and its endings, increased argentophilic nature of the medullated fibers, myelin sheath thickening are observed.

**Narang Neha, Panasenkov V.A.**

### **HEMOPOIETIC GROWTH FACTORS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Generally hemopoiesis is controlled by a number of different growth factors produced by various cell types. Each factor acts on specific stem cells, progenitor cells, and precursor cells, generally inducing rapid mitosis, differentiation, or both. Some of these growth factors also promote the functioning of mature blood cells. Most hemopoietic growth factors are glycoproteins.

**Results.** Three ways are used to bring growth factors to their target cells: 1) transport via the blood (as endocrine hormones); 2) secretion by stromal cells of the bone marrow near the hemopoietic cells (as paracrine hormones); 3) direct cell-to-cell contact (as surface signaling molecules). Certain growth factors — principally, steel factor (also known as stem cell factor), granulocyte-macrophage colony-stimulating factor (GM-CSF) and two interleukins (IL-3 and IL-7) — stimulate proliferation of pluripotential and multipotential stem cells, thus maintaining their populations. Additional cytokines, such as granulocyte colony-stimulating factor (G-CSF), monocyte colony-stimulating factor (M-CSF), IL-2, IL-5, IL-6, IL-11, IL-12, macrophage inhibitory protein- $\alpha$  (MIP- $\alpha$ ), and erythropoietin, are strongly believed to be responsible for the mobilization and differentiation of these cells into unipotential progenitor cells. Colony-stimulating factors (CSFs) are also responsible for the stimulation of cell division and for the differentiation of unipotential cells of the granulocytic and monocytic series. Erythropoietin activates cells of the erythrocytic series, whereas thrombopoietin stimulates platelet production. Steel factor (stem cell factor), which, as discussed previously, acts on pluripotential, multipotential, and unipotential stem cells, is produced by stromal cells of the bone marrow and is inserted into their cell



membranes. Stem cells must come in contact with these stromal cells before they can become mitotically active. It is believed that hemopoiesis cannot occur without the presence of cells that express stem cell factors, which is why postnatal blood cell formation is restricted to the bone marrow (and liver and spleen, if necessary). Some hemopoietic cells are programmed to die by undergoing apoptosis unless they come into contact with growth factors. Such dying cells display clumping of the chromatin in their shrunken nuclei and a dense, granular-appearing cytoplasm. On their cell surface, they express specific macromolecules that are recognized by receptors of the macrophage plasma membrane. These phagocytic cells engulf and destroy the apoptotic cells.

**Conclusion.** It has been suggested that there are factors responsible for the release of mature (and almost mature) blood cells from the marrow. These proposed factors have not yet been characterized completely, but they include interleukins, CSF, and steel factor.

**Kochneva E.V., Nekrasova Y.V.**

**THE STUDY OF NEUTROPHILIC PHAGOCYTOTIC ACTIVITY ON THE ASSOCIATION OF CANDIDA ALBICANS AND STAPHYLOCOCCUS AUREUS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Microbiology, Virology and Immunology**

**Introduction.** Pyoinflammatory infections caused by association of *C. albicans* and *S.aureus* are topical issue for study by researchers from different countries, due to the fact that in 27 % of cases they can become a cause of nosocomial infections and in 20 % cause acute puerperal mastitis in women. Today mechanisms of the immune response in polymicrobial infections are not fully understood. Sometimes the phagocytic activity against fungi *C.albicans* is complicated because of the size of these cells and the presence of hyphae elements. Furthermore, the microbial cells of *S.aureus* are capable of synthesizing substances that inhibit the phagocytic reaction.

**Aim:** to examine the phagocytic activity of neutrophils on the association *C.albicans* and *S.aureus* in experiments in vitro.

**Materials and methods:** the study was conducted on clinical strains *C.albicans* and *S.aureus*, excreted from patients with pyoinflammatory diseases, as the control group the reference strains were used. The phagocytic activity was studied using standard methods. After incubating with citrated blood with agar cultures the mixture was centrifuged, the lymphocyte surface layer applied onto a glass slide was selected, stained with Romanovsky-Giemsa and the microscopic investigation was made.

**Results:** basing on this work it was found that the phagocytic activity of immune cells decreased concerning clinical strains, compared with the reference. Phagocytic index for clinical strains of *S.aureus* was  $3,2 \pm 0,05$ , for reference strains -  $4,66 \pm 0,37$ . Indicators decreased phagocytic activity and clinical strains *C.albicans*, phagocytic index was -  $3,74 \pm 0,17$ , in reference strains -  $4,14 \pm 0,21$ . The most aggressive properties showed microorganisms in the association: phagocytic index for clinical strains *C.albicans* + *S.aureus* was  $3,03 \pm 0,07$ , for reference -  $3,36 \pm 0,27$ .

**Conclusions:** Conducted researches have shown that the most pathogenic properties are manifested in clinical strains of *S.aureus* and *C.albicans* association + - phagocytic index was  $3,03 \pm 0,07$ . It is possible that this is a result of receptors blockade on the phagocyte



surface under the influence of enzymes of microorganisms aggression, thereby the immune response mechanisms are suppressed.

**Nekrasova Y.V., Liermontov O.O.**  
**NEUROPLEXES OF HUMAN PERICARDIUM**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Operative Surgery and Topographic Anatomy**

**Aim:** to investigate the pericardial sac specimens of the corpses of adults and children aged between one month to 8 years were used. On the pericardial sac specimens dense the vascular network is detected, and on its background there is some large and small loop wale plexus. The last one is formed in front mainly with the branches of diaphragmatic nerves.

**Materials and methods:** The study was conducted on the 10 corpses of children, as well as 10 adult's preparations of the heart on the Department of Normal Human Anatomy.

**Results:** the pericardial branches of the left diaphragmatic nerve presented in most of the front surface of the pericardium, while the right phrenic nerve branches presented in a considerably smaller part. Lateral branches diaphragmatic nerves arise from the pericardium along their entire length in both sides in different quantities and different diameter. Branches which arise from the upper third of the nerve, go in the downward direction, in the center third of the nerve – horizontally, in the lower third – in the ascending direction. Between lateral branches of diaphragmatic nerve large and small loop wale plexuses are formed, which lied on the surface layer of the pericardium. In the deep layer of the pericardium from the superficial plexus the individual nerve trunks depart, which penetrating in thickness located between the elastic fibers. Individual branches of pericardial plexus followed along the vessels or separately. In some places where the nerves cross large vessels the vascular network is formed. Individual lateral branches of diaphragmatic nerves form some types of connecting between one each other. Nerve trunks of pericardial plexus formed with branches of diaphragmatic nerves constitute lots of branches crosses. Individual nerves arise from plexus and form some receptor apparatus – different types of sensory endings. A large number of large-sensitive endings were found, with which the terminal fibers emanating from the pericardial nerves finalize. These endings belong to the encapsulated type.

**Conclusion:** the damage of neuroplexes of human pericardium can result in death of the patient during operations on the heart and pericardium. Also different location of plexus complicates the task for cardio surgeons. This study will provide options for the location of the neuroplexus and thus increase the number of conducive outcomes of operations. Therefore the study of the morphological features of the structure of pericardial nerves is important for surgical treatment.

**Sokol O.M., Nekrasova Y.V.**  
**EFFECTIVENESS OF ADAPTATION OF FIRST YEARS MEDICAL**  
**STUDENTS TO THE EDUCATIONAL PROCESS**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Physiology**

**Introduction.** Feature of students livelihood is the need of processing and assimilation of large amounts of new information in terms of lack of time, high voltage external social conditions due to the necessity to pass tests, examinations in time, abrupt change in approaches to studying, of many in students - changing of conditions. Currently, there is a



large number of published data on the negative impact of the learning process on the health of students, but these data are of one-sided, often contradictory, that makes it difficult to form objective representations of the dynamics of the emergence and development of health conditions of students.

**Aim:** to investigate the effectiveness of adaptation to learning activities information and under circumstances of psycho-emotional stress.

**Methods and materials:** the research was conducted with the first three years students of KhNMU in terms of the educational process that simulated the dynamic of information nature load. The structure of the experimental groups consisted of 52 first, 81 - second and 69 – third year students. Control group included 53 students who had just entered the first year. Study of the intersystemic integration of cardiorespiratory systems of the body and GNI was performed experimentally according to the specific pattern. For this purpose we developed the individual card research that reflected the parameters of functions that were investigated and recorded, as well as design parameters and anthropometric data of the patient at rest and after exercise. Dosed exercise was modeled on the 60Hz bicycle ergometer of 200W continuous power. An indicator of physical activity was the duration of the performance. The investigation parameters of the students hemodynamics are: heart rate, blood pressure (systolic, diastolic, pulse and average), systolic and diastolic blood volume were calculated. Respiratory function was assessed basing on indicators of functional samples inhale (Stange's test) and exhale (sample Ghencea). To evaluate the integrative brain function the duration of individual minute was defined. Intelligent load was modeled using the Ketel's test.

**Results:** the initial stages of studying are characterized by the formation of nonspecific emotional stress, which is manifested almost in all students and activates the formation of specific adaptive responses. After the 2nd - 3rd semesters there was a clear separation of students by implementing variants of adaptive responses: about 30% of students demonstrate adequate adaptation to educational process, 12-15 % of the students after nonspecific activation immediately transferred to the depletion of adaptive capacities, and more than 50% students demonstrate hyperadaptation that is the adaptation to the training load is excessive in nature. The last two groups of students eventually merge into one which is characterized by the depletion of adaptive capacities and the emergence of disorders of both mental status, and autonomic software.

**Conclusions:** 1. Thus, the giving data show that studying at the university in its present form combined with student's conditions, bear stressful characteristics and require express stress adaptation mechanisms. 2. The first three semesters of study are characterized by almost uniform increase in activity of adaptive processes in all medical students. Starting from the 3rd - 4th semester the part of polarization of adaptation process results is observed: the students go into adaptive optimum, and most demonstrate signs of adaptive mechanisms breakdown. 3. These phenomena require reforming of the higher education current system and the development of measures to prevent disorders of students health.

**Obioha John Obumneke, Boyagina O.D.**  
**MORPHOLOGICAL FEATURES OF SCOLIOSIS**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of human anatomy**

**Introduction.** Scoliosis is a medical condition in which a person's spine is curved from side to side. Although it is a complex three-dimensional deformity, on an X-ray,



viewed from the rear, the spine of an individual with scoliosis can resemble an "S" or a "?", rather than a straight line. Scoliosis is typically classified as either congenital (caused by vertebral anomalies present at birth), idiopathic (cause unknown, sub-classified as infantile, juvenile, adolescent, or adult, according to when onset occurred), or secondary to a primary condition. Secondary scoliosis can be the result of a neuromuscular condition or syndromes such as Chiari malformation.

**Results.** Recent longitudinal studies reveal that the most common form of the condition, late-onset idiopathic scoliosis, is physiologically harmless and self-limiting. The rarer forms of scoliosis pose risks of complications. The deformity may begin in the intervertebral discs producing distortions in the Epiphyseal cartilage which may influence the end of growth and therefore the deformity of the vertebrae, resulting in wedging and rotation of the vertebrae. People having reached skeletal maturity are less likely to have a worsening case. Some severe cases of scoliosis can lead to diminishing lung capacity, putting pressure on the heart, and restricting physical activities. The signs of scoliosis can include: •Uneven musculature on one side of the spine; • A rib prominence or a prominent shoulder blade, caused by rotation of the ribcage in thoracic scoliosis; •Uneven hips, arms or leg lengths; •Slow nerve action (in some cases). Adolescent idiopathic scoliosis has no clear causal agent, and is generally believed to be multifactorial, although genetics are believed to play a role. Congenital scoliosis can be attributed to a malformation of the spine during weeks three to six in utero It is a result of either a failure of formation, a failure of segmentation, or a combination of stimuli. Scoliosis secondary to neuromuscular disease may develop during adolescence, such as with tethered spinal cord syndrome. Scoliosis often presents itself, or worsens, during the adolescence growth spurt and is more often diagnosed in females than males. Scoliosis is defined as a spinal curvature of more than 10 degrees to the right or left as the examiner faces the patient (in the coronal plane). Deformity may also exist to the front or back (in the sagittal plane). Patients who initially present with scoliosis are examined to determine whether the deformity has an underlying cause. During a physical examination, the following are assessed to exclude the possibility of underlying condition more serious than simple scoliosis

**Conclusions.** During the examination, the patient is asked to bend forward as far as possible. This is known as the Adams forward bend test and is often performed on school students. If a prominence is noted, then scoliosis is a possibility and the patient should be sent for an X-ray to confirm the diagnosis.

**Oliynik A.V., Liermontov O.O.**

## **COMPARISON OF SURGICAL TECHNIQUES FOR PANCREATIC CANCER**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Operating Surgery and Topographic Anatomy**

**Introduction.** Pancreatic cancer is a malignant neoplasm originating from transformed cells arising in tissues forming the pancreas. The most common type of pancreatic cancer, accounting for 95% of these tumors, is adenocarcinoma (tumors exhibiting glandular architecture on light microscopy) arising within the exocrine component of the pancreas. A minority arise from islet cells, and are classified as neuroendocrine tumors. The signs and symptoms that eventually lead to the diagnosis depend on the location, the size, and the tissue type of the tumor, and may include abdominal pain, lower back pain, and jaundice (if the tumor compresses the bile duct),



unexplained weight loss, and digestive problems. Pancreatic cancer is the fourth most common cause of cancer-related deaths in the United States and the twelfth worldwide.

**The aim** of this study is to compare traditional technique of the operative access for pancreatic cancer and operative access with laparoscopic pancreatic surgery.

**Results.** Surgery is the only known treatment for pancreatic cancer that has a definite, positive impact on survival for this disease. Surgery is only used to remove cancers of the pancreas if all of the known cancer can be removed. If the cancer has not spread to any distant lymph nodes, blood vessels, or other organs, such as the liver, surgical treatment can be performed to remove the tumor. The location of the tumor within the pancreas determines the type of surgery. The most common surgical operations for pancreatic cancer are: - The Whipple procedure involves removing the pancreatic head and the curve of the duodenum together (pancreato-duodenectomy), making a bypass for food from stomach to jejunum (gastro-jejunostomy) and attaching a loop of jejunum to the cystic duct to drain bile (cholecysto-jejunostomy). Distal pancreatectomy is used for the removing tumor cancer of the tail and central part of the pancreas. Until recently the most common technique of the operative access has been upper midline laparotomy or sinistral oblique incision. Midline incision is vertical incision which follows the linea alba. The upper midline incision usually extends from the xiphoid proces to the umbilicus. Due to these method the anterior abdominal wall is opened layer by layer and surgeon gets a broad access to the damaged organ. But these methods are too damaging and have long and difficult after operative rehabilitation period. Nowadays the most advisable method of surgical operations for pancreatic cancer is laparoscopic pancreatectomy. Laparoscopic pancreatic surgery involves removing a pancreatic tumor and sometimes the spleen through five or six half-inch-long incisions in the abdomen. The surgical instruments are introduced into the abdomen through these small incisions along with a video camera (laparoscope) so that the surgical team can see the tissues. The benefits of laparoscopic pancreatic surgery are less pains, shorter hospitalization, lower rates of blood transfusion, quicker return to activity and work, increased likelihood of preserving the spleen, lower rates of wound infections and other complications, lower rates of subsequent hernia development.

**Conclusion.** Nowadays five-year survival rate after removal of the tumor of pancreas is small and varies from 3% to 25%. Nevertheless, surgical operation steel one of the most important method of treatment, and laparoscopic pancreatic surgery is an advanced surgical technique for pancreatic cancer.

**Onopriiko Yurii**

## **MORPHOLOGICAL AND FUNCTIONAL FEATURES OF THE STRUCTURE OF THE PITUITARY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Anatomy**

**Introduction.** Pituitary gland - is a component of the endocrine system. It is often called the lower appendage of the brain. This unpaired education oblong - rounded, somewhat uploshennoe in prerdnezadnem direction. This body is very important in the activity of the organism . Thus it is necessary to study then that the pituitary is exposed a large range of serious diseases. As of today , you just need to develop methods of treatment



of diseases. One of the most problematic diseases is - pituitary adenoma . The most common tumor chiasmosellar forms which comprise from 6.7 to 18% of all brain tumors .

**Results.** The pituitary gland (hypophysis) is an unpaired organ rounded shape and lies in the pituitary fossa of the sella turcica . Its weight is 0.5 grams. In the anterior lobe of the pituitary gland secretes , or adenohypophysis , an intermediate portion and the posterior lobe or neurohypophysis . Anterior lobe and the intermediate portion formed by epithelial cells and develop from epithelial protrusion wall oral buhty.V education posterior lobe involved ependymal and neuroglial cells . The development of this part comes from the diencephalon . The pituitary gland is connected to the gray hill , located on the bottom wall of the III ventricle , using a funnel. In the anterior pituitary gland produce growth hormone somatotropotsity activating somatic cell mitotic activity and protein synthesis ; laktotropotsity produce prolactin , which stimulates the development and function of the mammary glands and the corpus luteum ; gonadotropotsity - follicle stimulating hormone ( stimulation of growth of ovarian follicles , the regulation of steroidogenesis ) and luteinizing hormone ( stimulation of ovulation , corpus luteum formation , regulation of steroidogenesis ); tiotropotsity - thyroid stimulating hormone ( stimulation of the secretion of hormones thyrocites iodine ); kortikotropotsity - adrenocorticotropic hormone (stimulation of secretion of corticosteroids by the adrenal cortex ) . In the middle lobe of the pituitary melanotropotsity produce melanocyte-stimulating hormone ( melanin exchange regulation ); lipotropotsity - lipotropin (regulation of fat metabolism ) . The clinical introduction of neuroimaging , as well as methods for determining hormone radioimunnyh obusllovalo early diagnosis of pituitary tumors . Surgeons desire ulutsheno results of surgical interventions reach the possibility of total removal of adenomas and avoid complications , the emergence of new -modification sposobstvualo transsphenoidal access. Such operations are used when it is impossible any other intervention. Endoscopic technique has also some advantages over microsurgical , as it allows to perform operations less travmvtichno . Have an overview of the surgical field , and all anatomical landmarks orazovany all etaah surgery. Availability endoscopic optics gives a unique opportunity to visualize the formation of the field of view of the microscope.

**Otchyk A. E.**

### **RENAL FUNCTION IN RATS EXPOSED TO EMR IN UTERO**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Biological Chemistry**

**Introduction.** Studies in many countries investigated the electromagnetic radiation (EMR) exposure to the organs of hearing, nervous system, hemodynamic parameters, peripheral blood cells, genetic apparatus, tumor growth. It is proved that the nervous, immune and endocrine systems are the most sensitive to electromagnetic radiation, especially in the neonatal period. The mobile phone exposure to renal function has not been studied.

**The aim** of our study was to investigate the level of kidney function of 1-month-old rats whose mothers were exposed to EMR during pregnancy.

**Material and methods.** The experiments were performed with the use of 1-month-old Wistar rats which were exposed to EMR during the prenatal period. The females (their mothers) were exposed to low-level EMR in centimeter range (1-10 cm) with the power flux density up to 3 mW/cm every day for 4 hours within one month before pregnancy and



during pregnancy. They were exposed in a specially designed chamber with the transmitter in the form of a mouthpiece. The females in the control group were in the similar conditions in the chamber, but without exposure of EMR. The 1-month-old offsprings of both groups were taken from the experiment by decapitation under thiopental anesthesia. Serum creatinine, urea, total protein, protein fractions, transaminase activity were determined using sets of reagents made by Filisit - Diagnostics, and isoprostane-8 was determined with the help of IBL sets (Germany). Urine protein, urea, creatinine were determined using a set of reagents made by Filisit - Diagnostics. A morphological study was conducted.

**Conclusions:** 1. In utero exposure to EMR resulted in reduction in existing nephrons in the kidney of newborn rats and in increase in morphofunctional activity of the remaining ones. 2. These biochemical and morphological studies suggest the development of nephropathy in rats exposed to EMR in utero.

**Petrosova O., Sokol E.N., Vasylieva O.V., Bulynina O.D.**  
**COMPARATIVE ANALYSIS OF METHODS FOR LATENT TIME**  
**ASSESSMENT OF SENSOMOTOR REACTIONS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The study of the brain physiology in contrast to the morphology is different, since the study of gnosis and praxis nerve centers location in the cerebral cortex of man involves with the study of perception and motor functions necessarily. Selection of the most affordable and simple for experimental reproduction of valid functional brain asymmetry research methods is relevant in the theoretical and applied aspects of medicine.

**Aim:** the substantiation of research methods brain functional asymmetry reliability on the based of sensorimotor reactions (SMR). The task of the study was a comparative analysis of SMR construction with the help of computer technology and the method of evoked potentials.

**Materials and methods.** The study was conducted on young people 18-20 years aged. Latent time simple and complex SMR recorded by computer technology and the method of evoked potentials (MEP) with using EEG. During the study of sensomotor integration through computer technology each subject was examined in the following experimental series: 1) arbitrary pressing the right hand every 2 sec; 2) 1 second admeasurements test; 3) easy SMR with visual and auditory stimuli; 4) complex SMR with equiprobable presentation of visual and auditory stimuli.

**Results.** Both of methods allow to obtain objective information without verbal report of the testing person, which is especially important in the case of surveys of young children or patients with various disorders of consciousness or negative attitude towards the survey. Using these methods significantly in experiments studying the processes of higher nervous activity: development of conditioned reflexes, complex forms of learning, decision-making processes, functional asymmetry of the brain. Through the use of modern electronic equipment for SMR recording construction we can use computer technology for objective testing of sensory functions (vision, hearing, somatic sensitivity) too. But MEP with the registration of weak and ultra weak changes of the electrical activity of the brain in response to a stimulus is broadly applicable to obtain more accurate information about the localization of pathological processes in the brain. The main difficulty of evoked potentials registering is that brain responses significantly lower than that of the spontaneous EEG



rhythms and other signals, but they have a common spectrum with them. Signal-evoked potentials to spontaneous EEG (signal/noise ratio) for visual evoked potentials is 1/5, for somatosensory evoked potentials - 1/25. Therefore, almost none of the signals evoked potentials can not be seen in normal EEG recording. You need the ratio 2/1 - that is the signal evoked potential exceeded spontaneous rhythm and other noises at least twice to see and to register it.

**Conclusion.** We can make a conclusion about the reliability of the latter in the study of attention switching between perception and launch of motor program by comparison of SMR latent time during the study of MEP brain functional asymmetry and using computer technology.

**Pisarenko G.N., Polyakov A.V.**

### **BLOOD COAGULATION DISORDERS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of physiology**

**Introduction.** Blood coagulation disorders are usually taken to mean coagulopathies with reduced clotting of the blood but also encompass disorders characterized by abnormal platelet function or blood vessel walls that result in increased bleeding. Blood coagulation disorders may result from faults at many different levels in the coagulation cascade, also it can be lack of some factors and the reasons can be different-from disorders in genome to liver disease reducing synthesis of clotting proteins and thrombocytopenia. When collecting history should determine the presence of patient comorbidities, which are often the cause of acquired coagulation disorders. Because clotting factors are synthesized by the liver, liver disease usually contribute to the development of bleeding. Vitamin K, which is fat soluble, is essential for the synthesis of II, VII, IX and X of clotting factors. Diseases of the pancreas and small intestine , accompanied by malabsorption of fat , cause a decrease in the formation of coagulation factors above .Patients with systemic lupus erythematosus , such antibodies are produced as lupus anticoagulant, which despite prolongation of the clotting time in the study of in vitro and in vivo, promotes thrombosis. Transferred patients with severe infectious diseases , cancer, complications during pregnancy and burns may contribute to the development of DIC , which is characterized by widespread consumption of coagulation factors and platelets, leading to severe coagulation disorders .

**Results.** The most common inherited bleeding disorders are: hemophilia A and B: caused by a deficiency or lack of certain blood clotting proteins, called factors. This disorder causes heavy or unusual bleeding factor II, V, VII, X, XII deficiency: relate to blood clotting problems or abnormal bleeding problem-von Willebrand's disease: the most common inherited bleeding disorder; caused by a deficiency of von Willebrand factor, which helps blood platelets clump together and stick to a blood vessel wall. The main sign of a bleeding disorder is prolonged or excessive bleeding. The bleeding is normally heavier than normal and unprovoked. Other signs of a bleeding disorder include: unexplained bruising, heavy menstrual bleeding, frequent nosebleeds. The best outcome results from seeking early treatment. Complications can arise if treatment is sought too late. Complications can also arise if the disorder is severe or causes excessive blood loss. You can control blood loss by getting infusions of fresh or frozen plasma or concentrates of clotting factors into the blood. If a lack of vitamin K is causing the disorder, you can take vitamin K by mouth, through injections under the skin, or through a vein



(intravenously). Common complications of bleeding disorders include: bleeding into the brain, bleeding within the intestines, bleeding into the joints, joint pain.

**Conclusion.** Diagnosing a bleeding disorder is important so that the doctor can take extra care if you need surgery, and can test or warn other family members who might be affected.

**Pisarenko G.N., Polyakov A.V.**  
**SPIRITUAL CRISIS IN MODERN SOCIETY**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Philosophy**  
**Supervisor: Professor Karpenko K.I.**

**Introduction.** In the last time, the concept of crisis was central in many psychological studies, as in domestic, so in foreign science. In connection with this are: crisis in the global social systems (we can talk about political, moral, ethical, national crisis); crises in small social communities (family, labor, scientific, educational groups); personal crisis (including spiritual crisis). The very notion of a spiritual crisis sounds - is a form of identity crisis, manifested in the experience of the loss of existential foundations of existence, which occurs in response to an emotional reaction concerning individually significant event or phenomenon, involving violations of the process of finding the sacred. Accommodation individual spiritual crisis leads to the construction of his new life orientation system based on subjective experience gained. Spiritual crisis manifests itself in conflict conditions, caused by the fear of death, loneliness, freedom, meaninglessness, guilt, responsibility, dissatisfaction and suffering. Although the scientific community there is no single definition of the phenomenon as a spiritual crisis. Speak of "psycho-spiritual crisis", "transpersonal spiritual crisis", "existential crisis." In my opinion, all these concepts describe only certain aspects of the phenomenon as a spiritual crisis. Renowned psychologist V.F. Vasylyuk sees the crisis as one aspect of a critical situation, along with stress and conflict [See: 3]. In his opinion should be considered a category of crisis through life experience, understood as unfolding whole way of life as an individual. Here crisis - a crisis of life, a critical moment and turning point of life. Inner necessity is the realization of a person's life their way, their life plan. When a person is faced with certain difficulties in the way of this plan, when in the face of events, covering the most important relationship in life man, he finds himself powerless in the long term implementation plan of life, a crisis occurs. Recalling J. Jacobson, Vasylyuk highlights features of the psychological theory of crisis. First, this theory applies primarily to the individual, although some terms used in relation to the family, small and large groups. Second, the psychological theory of crises emphasizes not only possible pathological consequences of the crisis, but also opportunities for growth and personal development. Needless personal development - is the process of development and formation under the influence of a variety of external and internal factors, the development is also a process of physical, intellectual and moral growth of the person and reflects the degree of maturity and enlightenment. According Asmolova A.G., one of the problems of personality development is the transition from role relations to personal-semantic relations in the context of the human way of life. This is where a person departs from the interests and attitudes of external nature dictated and defined fashion, and refers to his own. Ya Occurs according Asmolova, self-realization of the individual in the course of her life's



journey, defending their individuality. However, such a transition is possible only when there is a problem before the person - conflict situation, overcoming that the person gets the motivational- meaning attitude to their own lives.

**Conclusion.** Experience problem- conflict situation requires human-induced changes in the life style, way of thinking, ways of knowing and seeing the world, relationship to themselves and others that, as a consequence, may lead to a spiritual crisis.

**Popenko S.**

### **STUDY OF ANTIBIOTIC PROPERTIES OF MARINE ACTINOMYCETES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Although more than 30,000 diseases have been clinically described, less than one third of these can be treated symptomatically and fewer can be cured. New therapeutic agents are urgently needed to fulfill the medical needs that are currently unmet. Natural products once played a major role in drug discovery. Although the exploitation of marine actinomycetes as a source for discovery of novel secondary metabolites is at an early stage, numerous novel metabolites have been isolated in the past few years. Among them, a few compounds such as staurosporinone, salinosporamide A, lodopyridone, arenimycin, marinomycins and proximicins from are of particular interest due to their rarity and potent and diverse bioactivity.

**Results.** Salinosporamide A is a novel rare bicyclic beta-lactone gamma-lactam isolated from an obligate marine actinomycete, *Salinispora tropica*. Salinosporamide A is an orally active proteasome inhibitor that induces apoptosis in multiple myeloma cells with mechanisms distinct from the commercial proteasome inhibitor anticancer drug Bortezomib. It is being developed by Nereus Pharmaceuticals, Inc. (as NPI-0052) and was scheduled to enter clinical studies for treatment of cancer in humans in 2006. NPI-0052 is currently being evaluated in multiple phase I trials for solid tumors, lymphoma and multiple myeloma. NPI-0052 represents the first clinical candidate for the treatment of cancer produced by saline fermentation of an obligate marine actinomycete. Salinipyrones A and B are new polyketides isolated from a phylogenetically unique strain of the obligate marine actinomycete, *Salinispora pacifica*. The biological activity of salinipyrones A and B did not show appreciable antibacterial activity against drug resistant human pathogens. However, salinipyronone A displayed moderate inhibition of interleukin-5 production by 50% without measurable human cell cytotoxicity. Lodopyridone is a unique alkaloid produced by a marine *Saccharomonospora* sp. isolated from marine sediments collected at the mouth of the La Jolla Submarine. Lodopyridone possess activity against the human colon adenocarcinoma cell line HCT-116. Arenimycin is a new antibiotic belonging to the benzo[*a*]naphthacene quinone class produced by the obligate marine actinomycete, *Salinispora arenicola*. This new structural derivative is the first report of this class of antibiotics from this strain *S. arenicola*. Arenimycin has effective antibacterial activity against rifampin and methicillin-resistant *Staphylococcus aureus* and it exhibits potent antimicrobial activities against drug-resistant *Staphylococci* and other Gram-positive human pathogens. In addition, the *Salinispora tropica* strain also produces four unprecedented compounds, Sporolide A, Arenicolide A, Cyanosporaside A and Salinispyrone A. These highlighted structures demonstrate the tremendous potential of marine actinomycetes for the production of novel secondary metabolites.



**Conclusion.** In view of the immense biological diversity in the sea as a whole, it is increasingly recognized that a large number of novel chemical entities exists in the oceans. As marine microorganisms, particularly actinomycetes, have evolved with the greatest genomic and metabolic diversity, efforts should be directed towards exploring marine actinomycetes as a source of novel secondary metabolites.

**Qasem Abed R., Isaeva I.N., Karmazina I.S.**  
**FUNCTION AND DYSFUNCTION OF BARORECEPTORS**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Physiology department**

**Introduction.** The sympathetic nervous system and the kidneys exert considerable influence on the long-term control of blood pressure. The ability of the baroreflex to influence both these systems of arterial pressure regulation via the central nervous system suggests that the baroreflex may contribute to the chronic regulation of mean arterial pressure. The ability of the baroreflex to powerfully buffer acute changes in arterial pressure is well established. Baroreflex-mediated changes in sympathetic nerve activity to the heart and peripheral vasculature counter short-term fluctuations in arterial pressure. While baroreflex-mediated changes in sympathetic nerve activity to the kidney may influence the renin-angiotensinaldosterone system and therefore may mediate more longterm changes in mean arterial pressure. However, it has been suggested that resetting of the baroreflex in the direction of acute and chronic pressure changes, and the observed effect of sinoaortic denervation on baroreflex indicates that the baroreflex may not be critical for setting the long-term “set point” of arterial pressure.

**Results.** Blood pressure is affected by baroreflex (BR)-mediated changes in efferent autonomic nerve activity to the heart, kidneys, and other vascular beds. Mechanosensitive baroreceptor neurons constitute the afferent signal of the “BR arc” which consists primarily of arterial, cardiopulmonary, and carotid sinus baroreceptors. While BR control of the cardiovascular system is necessary to regulate blood pressure, heart rate, and sympathetic nerve activity, BR resetting may contribute to the maintenance of hypertensive states. Inappropriate regulation of blood pressure and sympathetic nerve activity is associated with structural and hormonal changes that contribute to the development and progression of cardiovascular disease and leads to further dysregulation of BP and SNA. In discussing the function and dysfunction of the BR it is useful to define its operating parameters and alterations that occur in response to BP changes:

- Resetting: refers to the phenomenon whereby the baroreflex operating range and pressure threshold shifts in the direction of the arterial pressure change.
- Central resetting: refers to functional and/or anatomic changes in the CNS that occur in BR resetting associated with sustained changes in BP; may be quantified using the ratio of baroreceptor input to the amount of efferent SNA.
- Efferent resetting: refers to the relative amount of change in efferent SNA as mediated by the CNS in response to reset BR signaling.
- Pressure threshold: the arterial pressure at which baroreceptors begin to fire.
- Resting point: the mean arterial pressure at which the baroreflex maintains its buffering capacity, pressures above this result in reflex inhibition of heart rate and sympathetic nerve activity, pressures below this level result in disinhibition.
- Baroreflex Gain or Sensitivity: refers to the capacity of the baroreflex to buffer changes in arterial pressure; often depicted graphically as the slope of the relationship between mean



arterial pressure and heart rate, sympathetic nerve activity, R-R interval or baroreceptor firing. • Adaptation: whereby baroreceptors activity initially increases with a sustained increase in blood pressure but declines (or adapts) over time as the elevated pressure is maintained. • Postexcitatory depression: the suppression, or refractory period, of baroreceptor activity following a period of acute hypertension.

**Conclusions.** The potential for normalizing BR sensitivity and restoring the BR pressure threshold is an exciting prospect for individuals with compromised BR function (e.g., hypertension, aging, obstructive sleep apnea, and atherosclerosis). These individuals could potentially improve BP control using novel therapeutics that improves BR function through the alteration of humoral factors and molecular mechanisms responsible for baroreceptor signaling and CNS regulation of efferent SNA.

**Risovanaya L.M., Alexeenko R.V.**

**EVIDENCE-BASED MEDICINE - THE SCIENCE OR ART?**

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**Physiology Department, Department of Medical Physics and Biophysics and  
Medical Informatics**

**Background.** In the lexicon of modern physicians, a new term - "medicine based on evidence ( evidence-based medicine ) ." Philosophical meaning of this concept can be explained thesis, long debated in the medical community: medicine - the science or art?

**Results.** For comparison, the western and eastern model of medical practice. The Western model is considered formalized located within strict standards of care. Advantage and disadvantage of this model is in a tough pre-programmed actions of the doctor that on the one hand, reduces the number of medical errors, and on the other - limits the possibilities in the choice of therapeutic tactics . Thus, the present model looks like a conveyor belt - high, but not agile. Eastern model looks more like art because it provides a doctor for creativity. This model is more flexible, but less productive and less robustness. Nevertheless, over the past two decades, the difference between the two models medicine erased by applying the principles in practice medicine based on evidence. Until now, no single definition of what is "Evidence-based medicine ", but many believe that it is primarily conscientious, explicit and judicious use of best evidence to make decisions regarding medical care of individual patients. The practice of evidence-based medicine involves the union of the individual with the professionalism of the best available external evidence derived from the study. Increasing professionalism of the medical worker is manifested in many ways , but most clearly in a more effective and efficient diagnosis , more thoughtful identification and compassionate attitude towards the difficulties patients , their rights and preferences in clinical decision-making process regarding the provision of medical assistance to them. In evidence-based medicine is verification of the effectiveness and safety of methods of diagnosis, prevention and treatment in clinical trials. Under the practice of evidence-based medicine refers to the use of data obtained from clinical studies in daily clinical work of a doctor. Modern medicine approaches to the exact sciences, but still never be, so individual physician experience and personality are always important. Who should deal with evidence-based medicine? Principles of medicine based on the evidence necessary for every doctor who has to critically analyze and interpret scientific data and use it in practice.



**Conclusions.** Development of evidence-based medicine technology carries a number of essential changes in society for medicine and clinical science, into a relationship with the patient's doctor and the doctor with the state. These changes are based on the ethical priorities of health and life of every individual; require a physician and scientist developing new knowledge through active use of new information technologies.

**Ryzhenkov I.V., Lobko Ya.I.**

**MORPHOFUNCTIONAL PECULIARITIES OF THE ANTERIOR CENTRAL GYRUS' STRUCTURE OF THE HUMAN BRAIN IN SEXUAL DIMORPHISM**

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**Human Anatomy Department**

**Introduction.** Learning characteristics and morphology of the cellular structure of the cerebral cortex is an actual problem in the modern medicine. A great interests present learning of different stages of ontogeny and its peculiarities of neurodynamics. The anterior central gyrus is a fountainhead structure of the pyramidal system of the brain. Pyramidal system performs three basic functions: starting influence, control the flow of afferent signals in the nerve centers of nerve impulses in the plug spinal neurons. The fibers of the pyramidal motor neurons cause arousal flexor muscles. Particular attention is paid to the issue of sexual dimorphism in the human brain. Sexual dimorphism in structural asymmetry indicates the morphological features of the brain in men and women. The aim of the research was to identify sexual dimorphism hemispheres of the human brain.

**Material and methods.** The research was carried out on portions of the cortex of the human brain. The anterior central gyrus of the right and left hemispheres (namely the middle part is motor area of the cortex) were taken for researching. For processing the data a special methods of statistical analysis were used including morphological and morphometric methods.

**Results.** During researching the middle part of anterior central gyrus of the brain we made following conclusions. With increasing age men have reducing the number of neurons in the third layer of the cerebral hemispheres, increasing the number of glial cells, decreasing number of capillaries; in the fifth layer of anterior central gyrus we marked age-related changes similar to the same ones in the third layer. In women, age-related changes detected by the neuron- glial - capillary elements of anterior central gyrus of both the right and left hemispheres of the brain similar to those changes that is described in men. Sexual feature is only quantify of these changes. We learnt from research that the least impact on the change of neuron- glial - capillary interrelations of the third and the fifth layers of anterior central gyrus of the brain causes the sex of human; also there was founded that men average number of neurons, glial cells and capillaries in anterior central gyrus of man brain in the field of view greater than in anterior central gyrus of woman brain.

**Conclusion.** Thus, increasing age causes the number of neurons and capillaries of the third and fifth layers of the cerebral cortex of the right and left hemisphere is decreased in men, while the number of glial cells increases both the right and the left hemisphere. We founded changes of neuron-glial-capillary elements in anterior central gyrus of both the right and left hemispheres of the brain in women similar to those changes that is described in men. Sexual feature is quantify of these changes.



**Ryzhenkova I.V., Troyan O. A.**  
**MORPHOFUNCTIONAL ASYMMETRY OF THE HUMAN BRAIN**  
**HEMISPHERES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** In the present time researching of the functional asymmetry of the human brain hemispheres is important general scientific problem of neuropathologists, physiologists and geneticists. Functional potential of the human brain is more developed in the left hemisphere than in the right hemisphere, as there is better parasympathetic activity in left center of cerebral trunk than in right one. According to many researches it's known that left and right hemispheres of the human brain have different functions. The left hemisphere of the human brain is responsible for speech function and takes a part in prediction of difficult motor and mental acts and right hemisphere is responsible for the orientation in space.

**The aim** of the research is detection the asymmetry of hemispheres of the human brain in the middle part of the anterior central gyrus.

**Materials and methods.** The research was carried out on preparations of the human brain. Quantitative changes of neurons, glial cells and capillaries in hemispheres of the human brain were researched. During researching of the middle part of the anterior central gyrus it was detected that the average of the quantity of neurons, glial cells and capillaries is higher in the left hemisphere than the right hemisphere.

**Conclusion.** Thus, it may be suggested that for this research there is more right-handed people in a random select of objects, so the left hemisphere is more developed in right-handed people than the right hemisphere.

**Samoilenko S.E., Suliz A.P., Kulish A.S., Izmaylova L.V.,**  
**MORPHOLOGICAL PECULIARITIES OF THE NERVES OF THE HUMAN**  
**SUBOCCIPITAL MUSCLES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Human Anatomy**

**Introduction.** Motor activity of human body is provided by his muscular system which functions are closely related to other organs and integrated by the central nervous system. Considering this studying motor apparatus anatomy, its innervations and functional features should be assumed as an actual task. Lack of full information about anatomy and structural organization of the nerves of the suboccipital muscles, scientific and practical value of the problem determine actuality of this topic.

**Aim.** To study macro-microscopic anatomy and structural organization of the extra- and intravisceral nerves of the human suboccipital muscles.

**Materials and methods.** We were first to perform complex macro-microscopic and microscopic research of the suboccipital muscles of human considering their individual variability and age features to show age-depending dynamics of formation of structural organization of the conductor element of innervations of the suboccipital muscles. It was found that the process of myelogenesis of the nerves of the suboccipital muscles fits to the common stages of the peripheral nerves development. Wherein the stage of productive myelogenesis could be divided into two phases. During the period of embryogenesis the formation of myelin component of nerves of different muscles proceeds asynchronously and subordinates to the common regularities of the systemogenesis. Analysis of the morphometric parameters of the studied muscles allowed to define the appurtenance to the



certain functional type. Besides there were identified four forms of the short dorsal occipito-spinal muscles according to their external structure. The nerves of suboccipital muscles (rectus capitis posterior major and minor muscles, obliquus capitis inferior and superior muscles) were examined on the 20 cadavers of different sex and age. In total there were studied 150 macro-microscopic materials of nerves of the certain suboccipital muscles and 50 histological materials of the human muscle nerves. The source of innervations of the suboccipital nerves on the all materials are posterior rami of the C<sub>1</sub> and C<sub>2</sub>. Topography of this rami in the all examined groups is equal.

**Results.** The location of “hilus” is defined for each muscle. Nerves enter the rectus capitis posterior major muscle through the lateral part of its posterior surface, the rectus capitis posterior minor – through its posterior surface. The “hilus” of the obliquus capitis posterior major muscle is located on the superior and inferior edges of the muscular ventricle. Fetuses, newborns and children have “hilus” located near one of the extremities of the muscle and juveniles and another age groups – in the middle part of muscle. Posterior rami of the C<sub>1</sub> and C<sub>2</sub> are connected by a small nervous trunculus. We defined three forms of the location of this trunculus of the obliquus capitis inferior muscle: 1 – the nervous trunculus perforates the muscle (29,3%), 2 – the trunculus lays on the posterior surface of the muscle (8,5%), 3 – the connection is formed by two trunculi, one of them perforates the muscle and another one lays on its posterior surface (62,2%). In the thick of majority of the examined muscles the nervous trunculi are distributed mostly in mixed form and only in the thick of the rectus capitis posterior minor muscle the nerves branch in the magistral form. These forms of distributing of the intramuscular nerves take place on the materials of all age groups. Zones of the maximum concentration of the intramuscular nerves on the materials of fetuses, newborns and children are shifted toward the one of the ends of the muscle according to the “hilus” location. Juveniles and another age groups have them in the middle part of the muscular ventricle.

**Conclusion.** Locations of the “hili” where the nerves enter the muscles were defined. During the postnatal life they move from the end of the muscular ventricles to their middle parts. According to the situation of the “hili” the concentration of the nerves are different.

**Shmatko K.**

**TEAR GASES AND IRRITANT INCAPACITANTS: APPLYING,  
TOXICOLOGY, POISONING PREVENTION AND MEDICAL AID**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Medicine of Catastrophes and Military Medicine**

**Introduction:** Partial demilitarization of international relations on the background of sustainable economic contradictions and existing local armed conflicts threaten the peacekeeping process. Current unstable sociopolitical situation necessitates it not only for military doctors but, what's not least important and sometimes even more crucial, for civil doctors and health workers to know toxicology of poisonous military substances and also be able to provide prevention of poisoning, first aid and treatment.

**The purpose** of this study is to review toxicology and treatment guidelines of tear gases and irritant incapacitants that are in service of Ukrainian army and several foreign armies.

**Results:** Irritant incapacitants, also called riot control agents, lacrimators and tear gases, are aerosol-dispersed chemicals that produce eye, nose, mouth, skin and respiratory



tract irritation. Tear gas is the common name for substances that, in low concentrations, cause pain in the eyes, flow of tears and difficulty in keeping the eyes open. Only three agents are likely to be deployed: 1-chloroacetophenone (CN); 2-chlorobenzylidene malononitrile (CS); or dibenz1,4-oxazepine (CR). The desired effect of all riot control agents is the temporary disablement of individuals by way of intense irritation of the mucous membranes and skin. The device of instantaneous spraying of tear gas and irritant aerosol that is in service of armed and internal forces is "TEREN-6". It's intended both to prevent illegal actions of individuals, and to eliminate riots by temporarily suppressing psychological and volitional stability of offenders by using highly concentrated clouds of tear gas. Typically, ocular and respiratory tract irritation occurs within 20-60 s of exposure. Ocular effects involve blepharospasm, photophobia, conjunctivitis and periorbital oedema. Following inhalation, effects may include a stinging or burning sensation in the nose, tight chest, sore throat, coughing, dyspnoea and difficulty breathing. Dermal outcomes are variable, more severe for CN and include dermal irritation, bulla formation and subcutaneous oedema. Removal from the contaminated area and fresh air is a priority. There is no antidote; treatment consists of thorough decontamination and symptom-directed supportive care. Exitus letalis is rather casuistic case, but, nevertheless, poisoning always leads to loss of combat capability.

**Conclusion:** CN, CS and OC are effective riot control agents that cause instantaneous loss of combat capability. The irritant effects can be minimised both by rapid evacuation from sites of exposure, decontamination and appropriate supportive care.

**Sokol R.I., Vasylieva O.V., Sokol E.N., Zelenskaya A.N.**

**THE EFFECTIVENESS OF MUSCULOSKELETAL SYSTEM MORPHO-FUNCTIONAL ADAPTATION TO THE STRESS FACTORS COMBINED EFFECTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The state of stress is part of our daily experience, which is caused by many different causal factors such as emotional excitation, mental or physical exertion, fatigue, pain, fear, humiliation or disappointment and sometimes even unexpected success, giving rise to the restructuring of the way of life. Stressful stage of excitation is possible to observe in all organs and tissues of the biosystem and any of its level - from the molecular to the organismic. The study of morphological and functional adaptation of osteochondral system during exposure to stress is practical interest; according to the scientific literature this question is studied not enough and should be complemented knowledge in this area.

**Aim:** to study the negative effects of stress to the various etiologies cartilage and bone tissue, depending on the age and type of nervous activity.

**Materials and methods.** The study was conducted within the framework of scientific work SE "Sytenko Institute of Spine and Joint Pathology NAMS of Ukraine" with white Wistar rats.

**Results.** The study showed that excessive neurogenic stress (distress) leads to structural and metabolic damage to bone and cartilage tissues. This damage was significantly dependent on both the exposure time and the age of the stress and the type of neural activity. Microdestruction foci were detected at the final stage of the animals study. Compact bone responded to neurogenic stress faster than spongy. As it turned out, this is due to differences in the biochemical composition of tissues. Studies have been conducted of hypo- and hyperkinesia effects to the musculoskeletal system structure. These stressors



were the most harmful to the bone and cartilage. Hypokinesia caused degenerative changes. To elucidate the effects hyperkinesia used forced flexion of the trunk, which led to a systemic reaction of the spine (specific response), all other effects were similar to previous studies. Combining stress factors - intensified the effect. It was also found that the variations in bone and cartilage can be identified by changes in the level of metabolites in the urine.

**Conclusion.** The investigation of the stress influence to the musculoskeletal system requires further study specificity or not specificity of the reaction of bone and cartilage tissues of the body to various stress factors and their combination, the level and duration. These studies can be used to prevent the effects of stress for public health practice: when surveyed athletes, in the care of patients after prolonged immobilization, in the development of therapeutic interventions to restore the connective tissue.

**Sokolova A.**

**MYELOARCHITECTONICS OF NERVES FORMING THE VEGETATIVE  
PLEXUSES OF THE ABDOMINAL CAVITY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Human Anatomy**

**Introduction.** The released analysis of myeloarchitectonics of nerves that create the vegetative plexuses of the organs of the higher part of the abdominal cavity showed us that there are special myelinic fibers in the nerve trunk of hepatic and gastric plexuses and in the outside nerves of the pancreas. In the nerves of the mentioned plexuses the number of small diameter fibers predominate. The minimum of their contentment is determined in the initial parts of the hepatic plexus, and the maximum in the wreath during the right gastric artery and right gastroepiploonic artery and in plexuses located in the corpus and tail of the pancreas. Fibers of medium and large sizes are defined in the initial nerves of the hepatic plexus and plexus located in the head of the pancreas. In other plexuses the number of the fibers of medium size vary between 1,8% in gastric plexus, 3,9% in the branches of abdominal cavity comparing to the size of the pancreas. In the nervous plexus of the major curvature of the stomach nearly on the level of its body such fibers were not detected.

**Conclusion.** Thus, the number of myelin fibers for different categories which were studied during the research of these plexuses showed that in peripheral parts of their relative content of small diameter fibers and the number of other categories of fibers decreases. In this case, the amount of hepatic fiber plexuses of small diameter in the gate area of the liver is increased to 95.5 % and compared to the initial section of the fiber plexus reduced percentage of medium and large diameters.

**Starov K.**

**ANTIMICROBIAL PROPERTIES OF SUBSTANCES EXTRACTED FROM  
THE ENDOPHYTES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Microbiology, Virology and Immunology**

**Introduction.** Endophytes, found ubiquitous in all plant species in the world, contribute to their host plants by producing plenty of substances that provide protection and ultimately survival value to the plant. Many researches have proven that endophyte is a new and potential source of novel natural products for exploitation in modern medicine.



**Results.** A plenty of researches have reported that endophytes with no certain compound isolated showed antimicrobial activities, and some of which were significant. Five of sixty-three endophytic fungi, isolated from the rhizomes of a traditional medicinal herb *Paris polyphylla* var. *yunnanensis*, showed strong antibacterial activities against four Gram-negative bacteria (*Escherichia coli*, *Xanthomonas vesicatoria*, *Agrobacterium tumefaciens* and *Pseudomonas lachrymans*) and two Gram-positive bacteria (*Bacillus subtilis*, *Staphylococcus haemolyticus*). 353 endophytic fungi, with no certain compound isolated, were separated from medical plants (*Cyrtomium*, *Ophiopogon*). The proportion of inhibiting the growth of *Alternaria solani* and *Botrytis cinerea* was 15.9% and 11.3%, respectively obtained the fermentation broths of endophytic fungi from plants of *Garcinia* and tested the antimicrobial activity through the agar diffusion method against *Staphylococcus aureus*, *Candida albicans* and *Cryptococcus neoformans*. The results showed that 70 strains of the total 377 (18.6%) displayed antimicrobial activity against at least one pathogenic microorganism. A mass of endophyte researches are still in the screening stage, and the active ingredients need to be isolated. Alkaloids are quite common secondary metabolites in endophytes, and some of them show antimicrobial activities. Chaetoglobosins A and C, were characterized from the culture of an endophytic *C. globosum* originating from the leaves of *Ginkgo biloba*. In agar diffusion method, these two metabolites were shown to be antibacterial against *Mucor miehei*, further research show that both of them may have harmful impact on mammals for showing significant toxicity towards brine shrimp larvae. Many peptides produced by endophytes displayed significant antimicrobial activities. Leuesnostatin A produced by *Acremonium* sp. In *Taxus baccata*, displayed antimicrobial activity against *Pythium ultimum*. Cryptocandin, a novel peptide produced by endophytic *Cryptosporiopsis quercina* from *Tripterigium wilfordii* showed antibacterial activity against *C. albicans*. A group of peptides, echinocandins isolated from endophytic *Cryptosporiopsis* sp. And *Pezizula* sp. In *Pinus sylvestris* and *Fagus sylvatica* showed to be antimicrobial.

Phenol and phenolic acids have often been isolated from some endophytes cultures originating from a variety of host plants. The compounds exhibited antibacterial activities against gram-positive bacteria (*S. aureus*, *P.ultimum*, *Sclerotinia sclerotiorum* and *Rhizoctonium solani*), reported that two new phenol antibiotics with activities against methicillin-resistant *S. aureus*, produced by *Penicillium* sp. isolated as an endophyte from mangrove plant *Cerbera manghut*.

**Conclusions.** So, with further studies on metabolites produced by endophytes, there will be a great potential to find newly effective antibiotics.

**Stupnytskyi M.A.**

**THE BLOOD UREA/TOTAL PROTEIN RATIO – POSSIBLE RISK FACTOR  
THAT CAN PREDICT OUTCOME IN PATIENTS WITH SEVERE COMBINED  
CHEST TRAUMA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Biochemistry department**

**Introduction.** Accidental injury causes over 3 million deaths worldwide annually. It is the second most common cause of death in all age groups and the leading cause of death in adults younger than 45 years in the world. The availability of circulatory supportive medication and scheduled surgical strategies for the resuscitation of polytrauma patients led to a better survival outcome. Trauma scoring systems developed during the last decades



define the threshold of a polytrauma but do not serve as predictive values of death. The search for the best marker or set of markers for the diagnosis, prognosis and treatment of 'at risk' trauma patients is ongoing. Early identification and aggressive resuscitation measures aimed at correcting the impaired metabolic dysfunction improves survival and reduces complications in severely injured trauma patients. The metabolic response after major trauma is characterized by hypercatabolism and hypermetabolism. It is common known that amino acids are oxidized by the body, yielding urea and carbon dioxide, as an alternative source of energy in case of trauma induced catabolism of proteins.

**Aim:** to evaluate outcome predictive value of the blood urea/total protein ratio in case of severe combined chest trauma.

**Materials and methods.** Study was performed on 73 male patients aged from 20 to 68 who were treated at the anesthesiology and intensive care department for patients with combined trauma of Kharkiv city clinical hospital of emergency aid named by prof. O.I. Meshchaninov. Patients with severe blunt combined thoracic trauma with pneumothoraxes and hemothoraxes, lung contusions, heart contusions and multiply (>3) rib fractures were included in this study. Patients' examinations were performed on 1-2-d day after trauma (10.75-33.5 hours after trauma), 3-4-th day (48-75.2 hours) and 5-6-th day (97-122 hours). All patients were divided in to 2 groups according to outcome – survival and non-survival groups. Plasmatic concentration of urea was determined by the diacetyl monoxime colorimetric method. Total protein concentration was determined according to biuret method. Statistical analysis was performed using the GraphPad Prism 5.03. The significance level was specified as  $p < 0.005$ .

**Results.** The research displayed gradual increase of the blood urea/total protein ratio in blood plasma of both group of patients through all examination period more superior in non-survival group. In this group significant difference between values obtained on 1-2-d, 3-4-th and 5-6-th days after trauma was found according to Friedman test. Dunn's Multiply Comparison Test shows significant difference between values obtained only on 1-2-d and 3-4-th days. Significant differences of the blood urea/total protein ratio values between groups of patients were observed in every examination period according to Mann-Whitney test. Threshold values, that separate two groups of patients for every examination period, were determined according to the Receiver-operator characteristic curve method. All thresholds with high sensitivity and specificity values were obtained in every examination period. Maximum area under the Receiver-operator characteristic curve was obtained in 3-4-th day after trauma means best possibility for outcome prediction. Weak positive relationship between blood urea/total protein ratio and polytrauma severity, according to the Injury Severity Score, was observed according to Spearman correlation test. Moderate positive correlation with concentration of the plasma Medium-sized peptides (Middle mass molecules) was found too.

**Conclusions.** The blood urea/total protein ratio can be additional tool for evaluating outcome for patients with severe blunt combined thoracic trauma during period of acute posttraumatic disorders. This index reflects intensity of the metabolisms catabolic direction due to polytrauma. The presence of elevated blood urea/total protein ratio levels in the plasma can direct the treating physician to safe and correct timing of any surgical intervention. If facilities are available, we recommend estimation of this ratio sequentially in



polytrauma and multiple trauma patients. More attention should be given to patients whose blood urea/total protein ratio is persistently high up to 3-4-th days after trauma.

**Sushetskaya D.A., Alekseeva T.M., Limanskaya A.A.**

**THE PHOTON ASSOCIATED NANOBIO TECHNOLOGY CONTRIBUTION  
TO PERSONALIZED AND LASER MEDICINE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Medical and Bioorganic Chemistry**

**Introduction.** Nanobiotechnology play an essential role in developing medicine of personalization and its diagnostics. Due to biomarker molecules , we can determine the condition of destruction process of cell, DNA or RNA. Molecular visualization is the most important diagnostic modality, combining a therapeutic and diagnostic approaches. Nanoparticles are used to generate molecular visualization, which allows to select patients for personalized therapy.

**Results.** The principle of quantum entanglement can be the base of safe ( quantum ) cryptography, quantum Internet, modern computational algorithms and photon teleportation. Nanofotonika encompasses interaction process of light and particles having the size which is much more less than the optical wavelength range of the electromagnetic spectrum. Using Raman scattering turned out to be possible to study the chemical bonds within the molecules, the geometry of the structure of chiral molecules, nanobiosensoriki problems associated with the detection of protein analytes, toxins as well as the molecular processes of vulnerability of atherosclerotic plaques and differentiation of stem cells. The Significant role in the study of optical properties of noble metals is playing nanosurface plasmons which is a collective oscillations of free electrons within the surface of metal nanofilms. Thanks to nanoplasmonics it totally became possible to transmit electromagnetic radiation along the chain of metal nanoparticles by laser excitation impact is plasmon oscillations to improve optical DNA biosensors, accomplish highly sensitive diagnosis of the tumor markers, develop immunosencoriki and study of conformational changes of biomolecules, as well as conducting bioassays using SERS are spectroscopy and other purposes.

**Conclusion.** Modern development of nanotechnology and biotechnology approaches led to the creation of multifunctional nanoparticles as advanced technology nanobiofotonnoy teragnosticheskogo for simultaneous exposure. Integration of individual visualization of nanoparticles with different properties in the multifunctional biobuilding allows more locally and quickly molecular diagnosis of cancer, as well as through its targeted delivery of therapeutic exercise (including laser ) exposure in the personalized medicine.

**Teslenko I.I., Vasylieva O.V.**

**COLOR EFFECTS OF THE SPEED CURRENT OF INTERNAL TIME**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The problem of person's internal time includes a wide range of topics: from the classical experiments on the study of subjective duration of time intervals up to the challenge of personal time management (features of perception, experience, planning and organization of a man of his life). Flow rate of the person's internal time is an important factor reflecting the ratio of the main processes (excitation and inhibition) in the central



nervous system (CNS). Normalization of speed person's internal time can be a way to enhance the individual human resistance to various stresses.

**Aim:** our aim was to study the depending of the velocity flow of the internal time with the color.

**Materials and methods:** the duration of individual minutes (DIM) evaluated by specially developed computer program using a different background color monitor. During the countdown subjects looked at the monitor screen with the specified color. Each patient performed a series of 10 measurements of time with each of the major background colors (red, orange, yellow, green, blue, indigo, violet) . The study of 48 students with an accelerated course of internal time was done, who voluntarily agreed to participate in the experiment

**Results:** the findings suggest that the color significantly affects the speed of the internal time. Found that the most significant changes were observed under the influence of extreme spectral colors: red and blue-violet. The effect of these colors were reversed. Red color caused more internal acceleration time but purple caused a slowdown. In this approximation the duration of an individual observed a minute to standard value ( $60 \pm 5$  sec). The definition of PIM under blue and purple colors of 10 minutes accompanied by significant improvement in the flow velocity of the internal time and other study parameters. The degree of functional asymmetry in terms purple monitor decreased 2.5 times and not more than 20 %. Improved results stabilometric test: students retain balance for 40-60 seconds. Decrease in the degree of asymmetry and functional improvement stabilometry indicate increasing effectiveness distribution of muscle tone and control. An increase of physical performance was found: the duration of physical activity increased to an average of 2.5 minutes. More than adequate response from the cardiovascular and respiratory systems to exercise have been observed. Recovery indicators rejected during the recovery period was faster. These data indicate a decrease in the "price" of adaptation. There is a clear increase in the velocity flow of the internal time, a clear predominance of the excitation process with the braking process under the influence of red color. The consequence of these changes was to reduce the physical and intellectual performance, increased aggression and anxiety, a sharp deterioration in vegetative parameters (blood pressure, heart rate, breathing rate).

**Conclusion.** Thus, the color is a factor that significantly influences the velocity flow of the internal time and the state of key processes in the CNS. This suggests that certain colors can be used as artificial modulators of the speed of person's internal time to optimize its adaptive capacities.

**Tkachenko A., Orlova M.**

**ACTIVITY OF MATRIX METALLOPROTEINASE-2 IN RATS WITH  
EXPERIMENTAL GASTROENTEROCOLITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Biochemistry Department**

**Introduction.** One of the potential etiological factors of chronic inflammatory bowel disease is known to be a food additive E407 (carrageenan), used in the food industry as a thickener. Prolonged systematic intake of carrageenan *per os* by experimental animals leads to the development of chronic inflammation, in particular, gastroenterocolitis. It has been known that chronic inflammation is accompanied by dysregulated extracellular matrix



remodeling. Matrix metalloproteinase-2 (MMP-2) is a member of metalloendopeptidases family that cleaves the protein components of the extracellular matrix and thereby plays a central role in tissue remodeling. The role of MMP-2 in chronic carrageenan-induced intestinal inflammation is still poorly understood.

**Aim.** The aim of the investigation was to study the activity of MMP-2 in blood serum of rats with chronic carrageenan-induced gastroenterocolitis.

**Materials and methods.** The female Wistar rats were used for the experiment. Chronic carrageenan-induced gastroenterocolitis was reproduced by the free access of animals to 1% solution of carrageenan in drinking water. Laboratory animals were divided into 3 groups. Animals from the 1<sup>st</sup> group consumed carrageenan during 2 weeks, animals from the 2<sup>nd</sup> group consumed carrageenan during 4 weeks and group № 3 consisted of intact animals. The level of MMP-2 in blood serum of animals was measured using Quantakine ELISA kit.

**Results.** It was found that the activity of MMP-2 was 3.1 times higher in animals from the 1<sup>st</sup> group and 1.6 times higher in rats from the 2<sup>nd</sup> group compared to control animals. MMP-2 catalyzes the breakdown of collagen type IV, a major component of basement membranes. Morphological investigation showed thinning of the basement membrane and disappearance of it in some areas of small intestine that might be explained by activation of MMP-2. The production of MMP-2 is known to be stimulated by TNF- $\alpha$ . The elevation of TNF- $\alpha$  in blood serum of rats with chronic carrageenan-induced gastroenterocolitis was showed in our previous investigations. Thus TNF- $\alpha$ -induced MMP-2 production leads to accelerated degradation and remodeling of extracellular matrix.

**Conclusions.** The development of carrageenan-induced gastroenterocolitis is accompanied by activation of MMP-2 indicating the intensive extracellular matrix remodeling.

**Tsiselskiy T., Ryhlik S.V.**

### **STRUCTURAL MORPHOLOGICAL FEATURES OF MAMMALS TESTES DEPENDING ON AGE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The testicular parenchyma of the dog consists of numerous seminiferous tubules lined with epithelial cells of Sertoli. These tubules are derived from coelomic primary kidney epithelium (pronephros) and participate in spermatogenesis. Between Sertoli cells there are primordial germ cell, spermatogonia, which are spermatozoa at the different developmental stages. Between the seminiferous tubules there are intermediate Leydig cells. These cells are accumulated around the blood vessels. These cells are relatively large and rounded with acidophilic cytoplasm vacuolated on the periphery of the cell. With age pigment starts to deposit in the cytoplasm.

**Aim:** to study the morphological structure of the testes of the dog during the sexually mature state and by elderly individuals.

**Materials and methods:** histological slides of the testes of the dogs during sexually mature state and elderly individuals stained with hematoxylin-eosin and picrite-Mallory staining method. Connective tissue septa of the tunica albuginea flabellately diverge and divide testicular parenchyma in the vertical direction into slices. Each segment consists of long convoluted seminiferous tubules, connected near Highmore's body with the straight seminiferous tubules that come into Highmore's body and form there Haller's network.



**Conclusion.** The study found out that in elderly dog's slides were observed degenerative changes in the seminiferous tubules with a decreasing number and volume of the Leydig cells and the presence of pigment inside that cells, unlike histological slides of the testis of mature dogs.

**Turmanidze K.**

## **CONGENITAL HEART DEFLECTION: DEFECTS IN HEART'S LOCATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of human anatomy**

**Introduction.** Congenital heart anomaly (CHD) is a defect in the structure of the heart and great vessels which is present in the birth. This problem is among most common birth defects and is the leading cause of birth defect-related deaths. 9 people per 1000 are born with CHD. Many heart anomalies location don't need treatment, but some complex CHD require medication and surgery. In case of defects connected with wrong location of the heart in thoracic cavity a patient needs compulsory surgical intervention.

**Results.** Main types of CHD connected with anomalies of the heart's location: 1. Dextrocardia. It's kind of defect when apex of the heart is situated in the right side of the body. There two types of dextrocardia: Dextrocardia of embryonic arrest (isolated): in this form the heart is simply placed farther right in the thorax than is normal. It is commonly associated with severe defects of the heart and related abnormalities including pulmonary hypoplasia. Dextrocardia situs inversus. It is further divided: this type of defect refers to the heart being a mirror image situated on the right side. For all visceral organs to be mirrored. The correct term is dextrocardia situs inversus totalis. Kartagener syndrome may also be present in patients with dextrocardia situs inversus, but also involves mirrored position of major internal organs that causes male infertility. Dextrocardia is usually accompanied with such defect as transposition of great vessels, Tetralogy of Fallot, ventricular septal defect. 2. Mesocardia. It's atypical location of the heart when apex is situated in middleline of the thorax as in early embryonic life. This is the most rare heart location anomaly, 9% of cases. This kind of defect is usually accompanied by ventricular septal defect, Tetralogy of Fallot. 3. Levocardia. In this condition heart is on the correct side of the body (left), but the related structures are on the wrong side, either due to correct transposition of the great vessels or to situs inversus. Usually this defect matches with anomaly of the venae cavae, Tetralogy and Pentalogy of Fallot, transposition of great vessels and one common ventricle. 4. Isolated levocardia. It's normal left-sided position of the heart with dextro position of the abdominal viscera. It has been reported with complex cardiac defects. This kind of defects is usually followed by such diseases as: transposition of great vessels, atrioventricular septal defect. 5. Situs Ambiguus or Visceral heterotaxy syndrome. This the defect when heart and other major visceral organs are distributed abnormally within the chest and abdomen. In this condition heart is situated on the right side within middleline of the chest, it has only one atrium. This defect is most dangerous of all. It is usually accompanied by: Fallot's tetralogy, transposition of the great vessels, pulmonary valve stenosis, ventricular and atrial septal defects. Children with this CHD die on the first year of life.

**Conclusion.** CHD connected with wrong position of the heart are suspected it is necessary to carry out a number of surveys on purpose to determine the type of heart's position, it's anatomic structure: electrocardiography, sonography, angiography.



Vasiylyeva O.V., Bulynina O.D., Shenger S.V.  
**SOCIABILITY PECULIARITIES IN INDIVIDUALS WITH DIFFERENT  
TYPES OF FUNCTIONAL ASYMMETRY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Communicative competence is based on specific features of mental processes and adequate response, ability to understand oneself, other people, their relationships and predict inter-social events. The ability of conducting a talk on a professional level is highly appreciated nowadays. Each medical school graduate should be able to communicate, establish and develop relationships with people. The ability to communicate, or communicative competence, builds understanding, trust in a relationship, as well as efficiency in solving problems. It should be noted there is still no single concept of understanding the professional communicative competence of the doctor, and the studies relate to individual questions of the problem.

**Aim:** our aim was to detect a possible relationship between the type of the functional asymmetry and sociability in students of Kharkiv National Medical University.

**Materials and methods:** The 54 students of KNMU 2 course have been examined. Control group includes 21 persons with a right type of functional asymmetry (RTFA). Comparison group consists of individuals with a left type of functional asymmetry (LTFA) - 12 persons, a person with mixed type of functional asymmetry (MTFA) - 8 people and those with socio-modified type of asymmetry (SMTA) - 13 persons. Sociability rating was carried out in a form of testing.

**Results:** Due to the results of the test "Your sociability" of individuals with different types of encephalic asymmetry, all individuals refer to one of the groups as follows (9-13 points): 12.2 RTFA; 12.1 LTFA; 11.8 MTFA and 10.8 SMTA (they are very sociable, sometimes even too sociable; talkative, like sharing their piece of mind on everything, like meeting new people; enjoy being in the center of everyone's attention, don't refuse requests, although they are not always capable of satisfying them, but they have a lack of assiduity, patience and prudence when dealing with serious issues). The least points among them are (4-8): 9.5% RTFA; 8.3% LTFA, 25% MTFA and 30.1% SMTA (they are often the reason for conflicts in their environment due to being quick-tempered, susceptible and biased). It should be noted, that none of these groups has the biggest amount of points (30-32). Therefore, most individuals with LTFA and SMTA are ideal listeners (25% and 23.1% correspondingly). Individuals with SMTA (53.9%) make wonderful speakers, and individuals with MTFA show poor results (75%). Individuals with MTFA and SMTA are the most uncompromising and stubborn (12.5% and 7.7%, correspondingly), and individuals with LTFA are the most tolerable (41.7%). Individuals with MTFA (25%) and SMTA (30.1%) show the lowest level of communicability.

**Conclusion:** 1. Individuals with Left type of functional asymmetry make ideal listeners (25%) and are the most tolerable (41.7%). 2. Individuals with Socio-modified type of asymmetry make wonderful speakers (53.9%), but they are the most uncompromising and stubborn (7.7%) and have the lowest level of communicability (30.1%). 3. Individuals with Mixed type of functional asymmetry do not possess declamatory skills (75%), are the most uncompromising and stubborn (12.5%) and have the lowest level of communicability (25%).



**Yakovleva D., Meshcheryakova I.**  
**TOXOCARIASIS INVASION: CLINICAL AND LABORATORY**  
**MANIFESTATIONS AND DIFFICULTIES OF DIAGNOSIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** In recent years the problem of toxocariasis is getting more and more urgent. The rapid pace of life leads to increase of series of helminthological diseases, which is mainly connected with the nature of population's employment. According to the statistics, the number of patients with toxocariasis in Ukraine increases every year. The coefficient of increase is 0,19, in Kharkov region – 0,15.

**The aim** of work is the analysis of toxocariasis's clinical and laboratory nature. The scientific novelty: the research of the clinical and pathological manifestations of visceral toxocariasis connected with taxidermy activities. The development of the preventative methods of the protection for the taxidermists.

**Conclusions:** 1. A recurrent nature of toxocariasis defines the fluctuations of immunological blood test's indices. 2. Toxocariasis can be the cause for autoimmune and allergic processes in the organism (without the genetic predisposition). 3. The duration of the course is typical for toxocariasis, therefore 4 courses of therapy are currently developed in Ukraine. The effectiveness of each of them depends on the individual features of the organism and the degree of infection. 4. The results of USR and EEG are not always the body's indicators of invasion. 5. The reasonable understanding of the professional risk will help to prevent the development of toxocariasis in time.

The materials of this work can be used for the prevention of toxocariasis, in particular for certain groups of people, whose activity is connected with the professional risk (taxidermists, game wardens, arboriculturists, veterinarians, gardeners, farmers and others).

**Yakymenko D. S.**  
**IMPACT OF FLUOROQUINOLONES ON CLINICAL ISOLATES OF**  
**MICOBACTERIUM TUBERCULOSIS**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Microbiology, Virology and Immunology**

**Introduction.** The widespread and erroneous use of fluoroquinolones in TB treatment has led to the recent emergence of resistance. *M. tuberculosis* acquires resistance to fluoroquinolones mainly through mutations in conserved regions, referred to as quinolone resistance-determining regions (QRDRs), of the *gyrA* and *gyrB* genes, which encode DNA gyrase. DNA gyrase contains a drug-binding pocket called the quinolone-binding pocket (QBP), which consists of both amino acid residues and DNA nucleotides. Mutations in the two genes change the structure of the QBP and may lead to broad cross-resistance to all fluoroquinolones. The most frequent mutations in clinical isolates are found at codons 90 (A90V), 91 (S91P) and 94 (D94G, D94A, D94N and D94Y) of *gyrA*. Mutations of codons 500, 538, 539 and 540 in *gyrB* are also related to resistance to fluoroquinolones. The altered amino acids encoded by these gene mutations are all located within the QBP and interact directly with quinolones. Because every generation of fluoroquinolones has the same drug targets, cross-resistance among fluoroquinolones is common. However, the resistance levels of each isolates against individual drugs are variable. In general, the minimum inhibitory concentrations (MICs) of newer generation fluoroquinolones are much lower than those of



older generation fluoroquinolones. Thus, the newer-generation fluoroquinolones are reported to retain efficacy in the treatment of ofloxacin-resistant cases.

**Aim.** To explore the association between resistance levels to fluoroquinolones and different mutations in *M. tuberculosis*, we determined the MICs of ofloxacin, moxifloxacin and gatifloxacin on 80 ofloxacin-resistant isolates and identified the mutations in *gyrA/B*.

**Material and methods.** The identification of these *M. tuberculosis* isolates was performed by conventional biochemical and polymerase chain reaction (PCR) tests. Among the isolates, 458 were identified as phenotypically resistant to at least one first-line anti-TB drug (isoniazid, rifampicin, ethambutol or streptomycin) by the proportion method on Lowenstein–Jensen medium with the following concentrations: isoniazid (0.2 mg/L), rifampin (40 mg/L), ethambutol (2 mg/L) and streptomycin (4 mg/L). The susceptibility of these 458 isolates to ofloxacin was further tested at a breakpoint concentration of 2 mg/L on Lowenstein–Jensen medium. From these analyses, 80 ofloxacin-resistant isolates were identified and selected for further study.

**Results.** The MICs of ofloxacin, moxifloxacin and gatifloxacin for the 80 isolates were determined using the microscopic observation drug susceptibility assay. In total, 68 isolates had mutations in *gyrA*, three isolates had mutations in *gyrB*, six isolates had mutations in both *gyrA* and *gyrB*, and three isolates had no mutations. Two common mutations in *gyrA*, the D94G and D94N mutations, were associated with higher-level resistance to all three fluoroquinolones than two other common mutations (A90V and D94A).

**Conclusion.** Understanding the relationship between MICs and mutations in ofloxacin-resistant isolates will facilitate the optimization of the use of new-generation fluoroquinolones to treat patients with ofloxacin-resistant tuberculosis (TB).

**Zakuznya O., Krivchenko Yu.V., Ladnaya I.V.**

**SOME ASPECTS OF ANATOMICAL VARIABILITY OF THE NERVES OF THE SUPRAHYOID MUSCLES OF THE NECK**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Human Anatomy**

**The purpose** of our investigation was study of the innervation of the neck's muscles considering an individual variability of their neuromuscular apparatus. This research has an important role in the clinical practice.

**Material and methods.** In order to study an individual anatomical variability of nerves of the suprahyoid muscles of the neck we've examined 58 corpses of people of different age groups (at the juvenile, mature and old age). In our present studies we used macromicroscopic, histological and morphometric methods.

**Results.** Our research revealed some regularities in the extraorganic and intraorganic innervations of the muscles and the character of their intratruncal structure were found. Special emphasis was given to the study of the relations between metric indications of the given group of muscles and quantitative characteristics of the myeloarchitectonic of their nerves. Myeloarchitectonic of the nerves of the suprahyoid muscles of the neck is characterized by presence of myelin fibres of four size groups: thin, middle, thick and very thick. The correlation between individual peculiarities of the structure of the lower jaw and the configuration of the nerve branching in the mylohyoid muscle was determined. In a dolichomorphic lower jaw mainly the magistral type of the branching is observed, in a



brachymorphic one the scattered type is observed and in a mesomorphic the mixed or scattered types are present. We found that extraorganic nerves of the suprahyoid muscles of the neck form connections with hypoglossal and glossopharyngeal nerves and periarterial sympathetic plexuses of some branches of the external carotid artery. In the depth of mylohyoid and geniohyoid muscles relation was revealed between nerve branches of the left and right sides. Extraorganic nerves enter suprahyoid muscles of the neck mainly from side of their internal surface. Quantity of myelin fibres in nerves, entering suprahyoid muscles of the neck has significant individual variability in studied age groups. We found that the greatest quantity of myelin fibres was in nerve of mylohyoid muscle. According our data this muscle has the most complicated structure of intraorganic nerve plexuses. The investigation has shown that size and volume of muscles depend on the shape of a lower jaw and a neck. Individual variability in the topography and in the amount of nervous branches which come to the muscles was observed in the innervation of the studied muscles. Constant sources of innervation have been determined and additional sources of innervation have been identified. Intermuscular nervous connections were found between the nerves of the muscles of the right and left sides. Peculiarities of the intramuscular nerve branching and the regions of their peak concentration for each of the nerves have been determined. The statistical analysis of the myeloarchitectonics showed quantitative differences in the composition of the myelin component of each studied nerve, while the information analysis revealed uniformity in their structure as communication channels. Innervation of the studied muscles revealed individual variability in the topography and number of the nerve branches supplying the muscles.

**Conclusion.** Findings of research were confirmed by statistical analysis. Our results may utilize for clinical purposes.

**Zeinab Hammoud**

### **EXPERIMENTAL PERIODONTITIS IN RATS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Histology, Cytology and Embryology**

**Aim:** The purpose of this study was to assess periodontal destruction following experimentally induced marginal periodontitis in rats by allowing them to freely soft homogenous food over a 30-days observation period. The extent to which the histological changes were examined. In addition, the distances between different junctions in the defleshed jaw were compared.

**Material and methods:** 10 white male rats were divided into two groups. Only five rats were as a control group, marginal periodontitis was induced by soft homogenous food which doesnot need any chewing pressure. Rats were killed after 30 days. Block of the defleshed jaw of rats (Premolar and buccal periodontal tissues) processed for light microscopic examination, followed by formalin fixed species were demineralization 5% Nitric acid and then embedded in paraffin, sectioned (5-7  $\mu\text{m}$ ) in the bucco-palatal dierction, parallel to the long axis of the tooth. Finally stained with hematoxylin and eosin. First method, histomorphometric analysis was carried out at x 150 magnification to determine distance at different sites: 1. From bifurcation of roots to top of interseptum bone. 2. Between the level of the enamel-cement junction to the top edge of the papilla 3. Between



cementoenamel junction and the alveolar bone crest. 4. From the enamel-cement junction to the bottom base of the pocket.

**Results:** Comparison of the two groups using measuring methods showed significant differences in bone loss, detected irregularity of the alveolar bone crest, resorption tops and sides of the alveolar bone, the bone becomes lower and narrower. Obvious increase observed in the distance from the bifurcation point to top of interseptum bone. In soft tissue periodontal marked leukocytic infiltration, especially in the area of the interdental papillae. Papillae densely infiltrated with neutrophils. 40 % of Rats showed migration of epithelial along root, the epithelium was attached to the tooth well below the cementoenamel junction. Thus, periodontal pockets are formed and are often filled with homogeneous basophilic substance.

**Conclusions:** Histological examination and morphometric data shows that reduction of mechanical stress on teeth leads to the development of degenerative and inflammatory processes in hard and soft periodontal tissues. The result is resorption of alveolar bone, migration of epithelium along the tooth root and formation of pathological pocket.

**Zharova N. V., Kulish V. P., Zhucova V. V.**

### **MORPHOFUNCTIONAL FEATURES OF THE OUTORGAN UTERO-OVARIAN ANASTOMOSIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of human anatomy**

**Introduction.** Studying of the sources of blood supply to human ovaries and locations of their anastomosing is a relevant direction in modern morphological researches. Despite the wide coverage of this issue in the modern literature, the data are sufficiently controversial and require clarification. The data of the sources of blood supply to the ovaries at different ages need to be clarified and studying wider. Variants of anastomosing vessels (uterine and ovarian arteries) have practical importance depending on the type of the constitutional structure of a woman's body.

**Materials and methods.** The materials for the research were 57 isolated internal genital organs women who died from pathology which is not related to the genital sphere, aged 25 to 55 years. The research was carried out taking into account the complex of modern anthropometric somatotype, macromicroscopical researches, the methods of corrosion and filling vessels with gelatin, colored ink.

**Results.** We have studied the place of uterine and ovarian arteries anastomosing, as the ovary receives supply from two systems - the uterine and ovarian arteries. The right and left ovarian arteries depart from the abdominal region of aorta, usually below the renal arteries, the length of 20-22 cm and a diameter of 0.5-0.6 cm at the level of the lower pole of the kidney gives branches to the kidney capsule and ureter. Descending into the pelvic cavity enters the ligament that supports the ovary where shares to its terminal branches – ovarian, going to the mesentery of the ovary and tube, going to the mesentery tube, rarely enters into the ovarian branch of the uterine artery without dividing. Ovarian branch of the ovarian artery gives 3-5 branches to the ovary and to the mesentery of the ovary, comes into anastomosis with the ovarian branch of the uterine artery. As a result of research we have identified three types of utero- ovarian outorgan anastomosis - single, when the ovarian branch of the uterine artery is anastomosing with the ovarian artery ( 17 preparations ), double when ovarian and tubal branch of the uterine artery are anastomosing with branches



of ovarian artery which has the same name ( 19 preparations ) , triple when three branches are anastomosing - ovarian and tubal branches of the uterine artery anastomosis with branches of ovarian artery of the same name (15 preparations ) , and the availability of additional branch of the uterine artery , which runs between the leafs of the broad ligament of the uterus and ovarian artery is anastomosing with at the lateral margin of ovary or in the ligaments that support the ovary (3 preparations). In cases where the ovarian artery was the only source of blood supply to the ovary - in this case, the utero-ovarian anastomosis is absent (3 preparations). In single anastomosis we identified several variants of anastomosing - in the mesentery of the ovary, in the mesentery of the uterine tube, in the ligaments that support the ovary, near tube angle of uterus. The place of junction in double anastomosis varies widely: in the mesentery of uterine tube and in the mesentery of ovary, in the mesentery of uterine tube and in the uterine tube angle, in the mesentery of the uterine tube and in the ligament that supports the ovary, in the mesentery of the uterine tube and in the broad ligament of the uterus. In the triple type the anastomoses are lying in the mesentery of the uterine tube, in the mesentery of the ovary, in the region of ligament that supports the ovary.

**Conclusion.** We noted that the single anastomosis is predominating for the women with asthenic type of body, for women with normostenic type of body both single and double, the triple anastomoses found in women with hypersthenic body type.

**Zyong Huyen Chang**

**ANTI-AGING EFFECT OF COCONUT (COCOS NUCIFERA L.) WATER ON THE FRESHLY EXTRACTED HUMAN TEETH**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Medical Biology Department**

**Introduction.** Coconut water has many nutritional and health benefits. It makes an excellent oral rehydration beverage and is even useful as an intravenous hydration medium. It has been shown that it prevents heart attack, reduces high blood pressure, dissolves kidney stones and prevents their reoccurrence, fights cancer, relieves constipation, and even retards the aging process. Coconut water contains a variety of nutrients including vitamins, minerals, antioxidants, amino acids, enzymes, growth factors, and other phytonutrients. Among the most interesting components of coconut water there are the plant growth substances, particularly the cytokinins playing a central role in plant developmental processes. However, many substances manifest cytokinin activity and the cytokinin themselves can express anti-cytokinin features. Therefore the purpose of present research was the identification of a main form of cytokinins of coconut water and its activity.

**Material and methods.** The cytokinin composition of coconut water has been analyzed by independent high-performance liquid chromatography (HPLC) and liquid chromatography–mass spectrometry (LCMS). The effects of coconut water and diphenylurea solution on a number of viable periodontal ligament (PDL) cells have been investigated on the freshly extracted human teeth.

**Results.** The HPLC and LCMS experiments has been revealed the cytokinin composition of coconut water with 1,3-diphenylurea, trans-zeatin, dihydrozeatin, metatopolin riboside, N<sup>6</sup>-isopentenyladenine and N<sup>6</sup>-benzylaminopurine etc. The main form of cytokinins in cocnut water was 1,3-diphenylurea (4,8 mg/L). In this study, 60 freshly



extracted human teeth were divided into 4 experimental groups and 2 control groups. In the first control group the viable PDL cells were counted immediately after extraction. In the second control group the viable cells were counted 8 hours after extraction. The experimental teeth were stored dry for 30 minutes and then immersed in 1 of the 4 fluids: coconut water, 1,3-diphenylurea solution, Hank's balanced salt solution (HBSS), and milk. The viable PDL cells were counted. The teeth stored in coconut water and 1,3-diphenylurea solution demonstrated significantly higher number of viable PDL cells followed in rank order by HBSS and milk. Coconut water preserved the viability of the cells 20 percent better than HBSS and 300 percent better than milk. 1,3-diphenylurea solution increased number of viable PDL cells for 15 percent better than HBSS and 260 percent better than milk.

**Conclusion.** The research has been proved anti-aging effect of coconut water and cytokinins on the freshly extracted human teeth, but the mechanism of their influence is still unknown.



## THERAPY

**Adaora Isaac Precious, Kochubiei O., Vizir M.**  
**COLORECTAL CANCER: DIAGNOSIS AND TREATMENT**  
**Kharkiv national medical university, Kharkiv, Ukraine**

**Propedeutics to internal medicine, basis of bioethics and biosafety department №1.**

**Introduction.** Colon cancer is one of the most common malignancies. In the structure of cancer morbidity in the world, colorectal cancer is currently in fourth place. Colon, or colorectal, cancer is cancer that starts in the large intestine (colon) or the rectum (end of the colon). Colorectal cancer treatment involves not only specific therapies for curing or controlling the disease, but also strategies for meeting a patient's emotional and physical needs.

**Results.** The main types of treatment for colorectal cancer are surgery, radiation therapy, and chemotherapy. Depending on the stage of the cancer, these treatments may be combined. Surgery is the most effective treatment for local colorectal tumors. Very small tumors can be removed through a colonoscope, but even with small tumors, removing the portion of the colon containing the tumor, the surrounding fat, and nearby lymph nodes is often the best treatment. Radiation therapy is treatment with high-energy rays that destroy the cancer cells. For rectal cancer, radiation is usually given after surgery, along with chemotherapy (known as adjuvant therapy), in order to destroy any cancer cells left behind. For patients with stage IV disease that has spread to the liver, treatments directed at the liver can be used. This may include: Burning the cancer (ablation), delivering chemotherapy or radiation directly into the liver, freezing the cancer (cryotherapy), surgery. Chemotherapy drugs are used to treat various stages of colorectal cancer. They include 5-fluorouracil, Xeloda, Camptosar, and Eloxatin. These drugs are commonly used in combination with one another. Chemotherapy is also used to improve symptoms and prolong survival in patients with stage IV colon cancer. Monoclonal antibodies, including cetuximab (Erbix), panitumumab (Vectibix), bevacizumab (Avastin), and other drugs have been used alone or in combination with chemotherapy. You may receive just one type, or a combination of these drugs. There is some debate as to whether patients with stage II colon cancer should receive chemotherapy after surgery. You should discuss this with your oncologist.

**Adeyemi Aleksander, Krivonosova E.M.**  
**THE APPLICATION OF URSODEOXYCHOLIC ACID IN PATIENTS WITH**  
**METABOLIC SYNDROME**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Internal Medicine № 3**

**Introduction.** Metabolic syndrome (MS) is defined as a complex metabolic and hormonal disorders, which are based on insulin resistance and compensatory hyperinsulinemia are also associated with the pathology of lipid metabolism and nonalcoholic fatty liver disease.

**The aim** of the study was to determine the efficacy of ursodeoxycholic acid (UDCA) in patients with MS.

**Materials and methods.** Were examined the 42 patients with MS (27 men and 15 women) in endocrinological department of Regional Clinical Hospital of Kharkiv. with a body mass index (BMI)  $35,51 \pm 2,11$  kg/m<sup>2</sup>. Determined biochemical blood indices (alanine



aminotransferase (ALT), aspartate aminotransferase (AST), gamma-glutamyl transpeptidase (GGT), alkaline phosphatase (ALP)), lipid profile (total cholesterol (TC), triglycerides (TG), high density lipoprotein (HDL), low-density lipoprotein (LDL)), carbohydrate metabolism (fasting glucose (FG), postprandial glucose (PPG), immunoreactive insulin (IRI)) using enzyme immunoassay and glucose oxidase methods. Also performed ultrasonographic examination of the liver and gall bladder. For the diagnosis of hepatic steatosis we used ultrasound criteria under which we determined the echogenicity of the liver parenchyma, the visibility of the gallbladder wall, diaphragm and liver capsule, which was assessed by threepoint scale (1 point - good visibility, 2 points - visibility difficult, 3 points - the structure is not visible) corresponding to the degree of hepatic steatosis. Studies were assessed twice: before the first treatment, repeated after 6 months of treatment. The subjects were divided into two groups: group 1 patients (n = 21) received combined therapy applied in the MS, group 2 (n = 21) additionally received UDCA in a dose of 15 mg/kg/day for 6 months. The control group consisted of 10 men of military age, were examined .

**Results.** In the biochemical studies we have examined MS patients before treatment were diagnosed syndromes cytolysis and cholestasis. The therapy in the 1<sup>st</sup> group of patients ALT level was  $36,20 \pm 15,93$  U/L , AST -  $37,96 \pm 12,73$  U/L , ALP -  $96,30 \pm 31,15$  U/L and GGT -  $36,30 \pm 32,86$  U/L, in the 2<sup>nd</sup> - ALT -  $20,55 \pm 10,02$  U/L, AST -  $19,14 \pm 9,00$  U/L , ALP -  $85,21 \pm 24 0$  U/L GGT -  $25,70 \pm 13,42$  U/L (p < 0.05). For all patients studied dyslipidemia was found. The therapy in the 1<sup>st</sup> group of patients TC level was  $5,30 \pm 1,12$  mmol/L , TG -  $1,25 \pm 0,52$  mmol/L, LDL- $3,03 \pm 0,96$  mmol/L, HDL -  $1,24 \pm 0,05$  mmol/L, p < 0.05, in the 2<sup>nd</sup> group - TC -  $3,98 \pm 0,55$  mmol/L , TG -  $1,01 \pm 0,05$  mmol/L, LDL -  $2,65 \pm 0,99$  mmol/L, HDL -  $1,28 \pm 0,06$  mmol/L (p < 0.05). In the study of carbohydrate metabolism in all patients was determined by elevated levels of IRI, FG and PPG. After the prescribed therapy IRI level in group 1<sup>st</sup> was reduced to  $19,51 \pm 1,07$  IU/ml, in the 2<sup>nd</sup> to  $10,61 \pm 0,98$  IU/ml, FG in group 1<sup>st</sup> to  $6,35 \pm 0,28$  mmol/L, in the 2<sup>nd</sup> to  $6,20 \pm 0,23$  mmol/L, PPG group 1<sup>st</sup> to  $7,48 \pm 0,32$  mmol/L, in the 2<sup>nd</sup> to  $6,95 \pm 0,27$  mmol/L (p < 0.05). During ultrasound in all patients was diagnosed nonalcoholic fatty liver disease with varying degrees of severity of hepatic steatosis - steatosis grade 2 ( 43% of patients in 1<sup>st</sup> group and 49 % in the 2<sup>nd</sup> group of patients ). Upon therapy in patients of 1<sup>st</sup> group steatosis grade 1 was seen in 39 % of patients , grade 2 - 44% of patients , grade 3 - 17% of patients , patients in 2<sup>nd</sup> group - 1 steatosis degree - in 71 % of patients and grade 2 - 29% of patients.

**Conclusions.** UDCA in adjuvant therapy in patients with MS reduces the severity of cytolysis and cholestasis syndromes due to its hepatoprotective properties due to incorporation into the membrane of hepatocytes; normalize dyslipidemia and inhibits manifestations of hepatic steatosis due to lower cholesterol formation in hepatocytes and excretion into the bile them; reduces insulin resistance and glycemia by hypocholesterolemic , antioxidant action.

**Almansoor Abdulkarim, Tytova G.**

**PHIDIPIDDES CARDIOMYOPATHY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine №2, clinical immunology and allergology**

**Introduction.** By nowadays there is a confusion as for the etiology of sudden death after extreme exertion. So far the focus has been on hypertrophic cardiomyopathy, anomalous coronary arteries, premature coronary artery disease, and acute myocardial



ischemia; however, there is now a new understanding that repetitive and sustained cardiac exertion may actually cause a form of cardiomyopathy. It has been known that endurance athletes have cardiac chamber enlargement, left ventricular hypertrophy, and increased rates of atrial and ventricular arrhythmias. It has been recently shown that focal areas of cardiac fibrosis seen on delayed gadolinium cardiac magnetic resonance imaging and at autopsy appear to be the implicated substrate for increased risk of sudden cardiac death when other etiologies have been excluded. Sustained cardiac output leading to transitory chamber dilation and the induction of patchy cardiac fibrosis in persons predisposed is now termed as Phidippides cardiomyopathy (Justin E. Trivax, Peter A. McCullough).

**Results:** A 50-year-old previously healthy man, who participated in multiple half-marathons and engaged in aerobic activity twice daily, 6 days per week, collapsed while driving. This occurred approximately 12 hours since his last workout. A rhythm strip performed by emergency medical services revealed ventricular fibrillation, for which he was successfully treated with cardiopulmonary resuscitation and electrical cardioversion. He was intubated, mechanically ventilated, and upon presentation to the hospital underwent therapeutic hypothermia. His electrolytes and creatine kinase were normal. Cardiac troponin-I was indeterminate (0.06 ng/mL). His ECG revealed normal sinus rhythm with diffuse repolarisation abnormalities. There was no prolongation of the QT, no pathological chamber enlargements, normal mitral valve apparatus, and no outflow tract obstruction. He underwent cardiac catheterization, which showed normal coronary arteries with diminutive RCA (posterior descending from left circumflex), with left ventriculography showing left ventricular hypertrophy (large papillary muscles) with hyperdynamic function. Subsequently, cardiac magnetic resonance imaging was performed, which revealed mild left ventricular hypertrophy with a mass of 166.2 grams and normal cardiac function. Using delayed gadolinium imaging, a patchy focal area in the mid-myocardial basal anterior septum, in a non-coronary artery distribution, was identified as the likely substrate of this patient's ventricular arrhythmia and subsequent cardiac arrest. He had complete neurologic recovery and underwent implantation of a cardio defibrillator before discharge. This case represents the first documented patient with sudden death occurring at a time remote from the endurance event and raises important points concerning the predisposition to cardiac fibrosis and the occurrence of lethal arrhythmias with and without exercise as a precipitant.

**Conclusion:** Repetitive, sustained elevations of cardiac output for several hours, in predisposed individuals, causes recurrent dilation of cardiac chambers and stimulates resident macrophages, pericytes, and fibroblasts, resulting in the deposition of collagen causing patchy fibrosis. The fibrotic areas, in turn, become the substrate for re-entrant ventricular tachycardia and degeneration to ventricular fibrillation. In the absence of a readily identifiable cardiac abnormality (eg, acute myocardial infarction, hypertrophic cardiomyopathy), Phidippides cardiomyopathy is a likely cause of sudden death in athletes, such as marathon runners.

**Anoop Vasu**

**APPLICATION OF STRUCTURE MODIFYING OSTEOARTHRITIS DRUG  
THERAPY IN THE TREATMENT OF POLYOSTEOARTHRITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine № 3**



**Introduction.** Osteoarthrosis, is a group of mechanical abnormalities involving degradation of joints, including articular cartilage and subchondral bone.

**The aim** of the study was to determine the effectiveness of structure modifying osteoarthritis drug (SMOAD) "structum" in polyosteoarthritis patients.

**Material and methods.** In rheumatology department of the Kharkov Regional Hospital, under observation were 37 patients with the diagnosis of polyosteoarthritis (12 men, 25 women) with lasting on average  $6,7 \pm 4,5$  joints, from age 46 to 65 years. The activity of alkaline phosphatases (ALP) level of seromucoid (SM), sialic acid (SA) and C - reactive protein (CRP) in serum was studied. All patients underwent X-ray examination of the musculoskeletal system, reovasography along with conventional clinical trials. Comprehensive survey of patients was conducted at admission, 12-14 days after the starting of treatment (during hospitalization) and after 8 -12 weeks of therapy. In the complex therapy (non-steroidal anti-inflammatory drugs, calcium supplements) for all patients was included SMOAD "structum." The drug was used to -500 mg. 2 times a day for 3 months. Effectiveness of the drug was assessed by the number of painful swollen joints, using a visual analogue scale (VAS), and also according to the biochemical and radiological examination methods.

**Results.** After the starting of the treatment with structum at week 12, VAS pain scores decreased on average 48% compared to the original, and a significantly increased joint function was observed after 12 weeks of treatment. It was also observed decrease in the number of painful joints from  $18,7 \pm 1,5$  to  $11,4 \pm 0,9$ . It was stated also that the patient's pain score on the VAS decreased significantly and amounted to  $26,8 \pm 7,7$  (before treatment -  $54,3 \pm 9,8$ ) by the end of treatment in the hospital. An adverse reaction to the drug was not observed. According to biochemical studies of blood serum (AP, SM and SC) positive dynamics was obtained. In addition, during the control X-ray examination at 6 months in patients receiving SMOAD "structum", there was no evidence of radiographic progression of joint space narrowing.

**Conclusions.** Application of SMOAD "structum" in the treatment of patients with polyosteoarthritis, provided positive clinical and radiological improvement and also improvement of biochemical parameters. SMOAD "structum" practically has positive effect and hence, can be widely used in the treatment of osteoarthrosis, without adverse effects on other organs and systems

**Bassey Nyikkeabasi, Ekott, Demydenko A.**

### **STATE-OF-THE-ART HOLTER MONITORING: CURRENT USES AND PROSPECTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of propedeutics to internal medicine N1**

**Introduction.** Heart diseases are one of the leading causes of death among women and men worldwide particularly in the developed world. However, before death occurs, most times there are always signs that could be detected early which if acted upon might reduce the incidence of deaths. There are many cases of sudden death due to heart attacks even in presumed healthy people hence, it became imperative that early methods of detection of heart attacks be invented. One of the early methods of detection in use today is Holter monitoring which is done using the Holter monitor.



**Results.** The Holter monitor was invented by American biophysicist Norman “Jeff” Holter and through his collaboration with Bruce Del Mar, it was developed into a commercially viable device. The rights for the Holter monitor was donated by the inventor to medicine. The first Holter device was about the size of a radio set. Improvements with the Holter device have gone in the same direction with improvement in computerization especially with the mechanical details, circuitry, accuracy and reliability due to the advent of microprocessors. With the invention of smaller storage devices such as chips, tapes were replaced thereby making it possible to produce smaller devices. Most Holter devices of today are about the same size with a small camera. Holter monitoring helps the doctor to know if the medications are working well, why a patient might have such symptoms as dizziness and if the heart is getting a good supply of Oxygen. A technician places electrodes on the respective parts of the patient's chest and connects the electrodes to the Holter monitor. Patients are then sent home to continue their daily routines after receiving a Holter event diary where they record what they did at different times of the day. This diary is usually interpreted by the technician to help patients understand when they had an abnormal heart rhythm and what they were doing at that time. One major advantage of the Holter monitoring is that it can detect abnormal electrical activity in the heart that might randomly occur during periods of sleep and increased physical activity. Also, the patient is not required to do anything extra other than return the device to the hospital after the test. There are also no known risks associated with the device. The only disadvantage associated with the Holter device, apart from the fact that it costs hundred of dollars is that patients must keep a diary of daily activities so that the technician can interpret abnormal readings. However, most patients usually comply because they know heart diseases are a major issue.

**Conclusion.** The future of the Holter monitor seems very bright. Already, researchers working in the university of Nottingham have invented the world’s first fetal/maternal heart monitor that will allow mothers and their doctors to monitor a baby’s health outside of the hospital. Doctors believe that the more they can monitor babies, the greater the chance of them detecting that they are running into difficulties before it is too late to help them.

**Bilchenko A.O., Prosolenko K.O.**

**INTERRELATIONSHIPS BETWEEN MICROALBUMINURIA AND  
ATHEROSCLEROTIC MARKERS IN PATIENTS WITH CORONARY ARTERY  
DISEASE**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Introduction.** Albuminuria and C-Reactive protein (CRP) predict cardiovascular mortality and morbidity in patients with pre-existing cardiovascular disease independent of conventional risk factors.

**The aim** of our study is to assess the relationship between microalbuminuria and atherosclerotic markers in patients with coronary artery disease(CAD).

**Material and methods:** We selected 39 adults with CAD. 20 were women and 19 were men, mean age  $65,4 \pm 7,2$ . Each patient was evaluated for Urine Albumin-to-Creatinine Ratio(UACR), lipid profile, intima-media thickness (IMT) by ultrasound and CRP level.

**Results:** The prevalence of microalbuminuria in our study was 64,1%.The level of microalbuminuria was  $28,9 \pm 12,9$  mg/mol. The UACR in males was  $29,24 \pm 14,56$  mg/mol and in females  $21,3 \pm 0,01$  mg/mol. Subjects with  $IMT \geq 0,9$  mm had greater



microalbuminuria level ( $33,4 \pm 5,6$  mg/mol) than those with  $IMT < 0,9$  mm ( $21,3 \pm 7,1$  mg/mol). UACR was correlated with IMT ( $r = 0,34$ ,  $p = 0,04$ ). Subjects with and without dyslipidemia had similar microalbuminuria level ( $28,1 \pm 8,2$  mg/mol  $29,2 \pm 6,9$  mg/mol,  $p > 0,05$ ). Subjects with elevated CRP level had greater UACR ( $35,9 \pm 5,1$  mg/mol) than those with normal CRP level ( $22,3 \pm 5,2$  mg/mol) ( $p < 0,05$ ). UACR was correlated with CRP level ( $r = 0,41$ ,  $p = 0,02$ ).

**Conclusions:** Microalbuminuria interrelated by atherosclerotic remodeling of carotid arteries and inflammation in patients with coronary heart disease.

**Boma Ibiba Douglas, Demydenko A.**

**ECG AS AN INDISPENSABLE TOOL FROM EINTHOVEN TO TODAY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of propedeutics to internal medicine N1, basis of bioethics and biosafety**

**Introduction.** Diagnostic Medicine has gradually metamorphosed from the use of ancient/orthodox instruments/machines to the use of modern and digital instruments and machines (eg computers, MRI equipment, ELISA machines, ECG –electrodes, Robots in surgery). The history of ECG is dated back to the early 20<sup>th</sup> century. The need for modern diagnostic equipments in Medicine cannot be overemphasized. Willem Einthoven invented the first practical Electrocardiogram in 1903 and received a Nobel prize in Medicine in 1924 for it. Although the capillary electrometer helped to initiate the study of the heart's electrical activity, Einthoven was unable to boost the device's capabilities to acceptable diagnostic levels. He therefore began work with another instrument—the string galvanometer. An early article that Einthoven wrote about the string galvanometer's registration of the human electrocardiogram was published in a Festschrift book in 1902. When Einthoven began to devise his electrocardiograph, he was unaware that a similar instrument had been constructed in 1897 by the French engineer Clément Ader, for the purpose of communications. Ader's apparatus had an extremely low sensitivity that was inadequate for clinical electrocardiography. Nonetheless, after Einthoven learned of this instrument, he cited Ader's work in a 1901 paper, “Un nouveau galvanometer,” in order to credit all persons known to have contributed any idea associated with Einthoven's invention.

**Results.** The string galvanometer comprised a thin, silver-coated quartz filament that passed between 2 electromagnets. An electric current passed through the filament and produced a movement that projected a shadow, which was magnified and registered. The string galvanometer provided readings of higher quality than its precursor, the capillary electrometer. This was due to the thinness and minimal mass of the string and to the ability of the operator to adjust tension to regulate sensitivity and response time. According to Barold, Einthoven achieved such amazing technical perfection that many modern electrocardiographs do not produce recordings of such high quality. Today, the modern ECG monitors are computerized data acquisition and display systems that typically provide continuous monitoring of multiple patient parameters. Most can display (1) the ECG, (2) respirations/impedance pneumography (via the ECG leads), (3) blood pressure (continuous invasive or intermittent noninvasive) and (4) oxyhemoglobin saturation ( $SpO_2$ ). Bedside units are usually modular in design. In these systems, additional modules can be added to provide monitoring of other parameters, such as end-tidal  $CO_2$ .



**Cherniakova A.**  
**QUALITY OF LIFE RESEARCH – THE FIRST STEP TO PERSONALIZED  
MEDICINE**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Introduction.** The rapid development and introduction of advanced diagnostic and therapeutic technologies, standardization of diagnosis and treatment have led to a paradoxical care of the most important principle of medicine - not to treat disease and the patient. Out of the crisis is found in the recognition of the autonomy of the patient, examining the quality of life (QoL), as an essential stage of decision-making in clinical medicine, clinical ethics.

**Aim.** Optimize personalized approaches to treatment and rehabilitation of patients, addressing the clinical ethics with the Multipurpose common type of international questionnaire MO SF - 36 in the practice internist.

**Materials and methods.** QoL, health-related, have been studied in 78 patients with diabetes mellitus (DM), (41 patients with type 1 diabetes and 37 with diabetes type2) and in 102 patients with bronchial asthma (BA), in 33 of which stated the mild form of the disease (2 Art), and 40 - the average (3 tbsp.) and 27-severe form of the disease (4 tbsp.) (new pie chart), treated in Allergic and endocrinology clinics of Kharkov National medical University (photo). QoL was investigated by MoD SF-36. The survey results were processed a special computer program, were evaluated on a scale from 0 to 100 ([www.sf-36org/demos/SF-36/html](http://www.sf-36org/demos/SF-36/html)).

**Results.** Overall rates of physical (RSS) and mental (MSS) health patients in both groups were significantly reduced, especially in diabetes type2. MSS with type 1 diabetes are at the level of the control group (slide 10). With RSS asthma was highest in mild, decreased as the disease progresses. MSS was the lowest in the mild form, grew at moderate asthma and significantly decreased in patients with severe disease. RSS and MSS in diabetes was highest in persons 20-30 years of age and were significantly decreased in older age groups, and the young, despite the low RSS MSS was relatively high. RSS gender differences in diabetes is detected, the MSS is lower in women. In BA MSS lowest in younger patients, and gradually increases in the older age groups. RSS lower in women men MSS. Overweight worsens RSS and MSS in diabetes. RSS is reduced in asthma, but it increases the MSS. AH single symptom, which reduces all QoL as in diabetes, and in asthma.

**Conclusions.** 1. MO SF -36 is an important tool that allows us to estimate the internal picture of the disease through the eyes of a patient, identify the "crisis units" in each case, to prevent a conflict between the doctor and the patient. 2. QoL assessment using the SF -36 Defense allows to select patients with low or unjustifiably high levels, to compare these data with medical conditions, patient preferences, contextual features, make the correction of the treatment, rehabilitation plan. 3. In considering the ethical issues that arise in clinical practice, it is necessary to take into account the results of the study patient QoL. Clinical ethics should be an integral part of quality medical practice.



**Delevskaya V.**

**PATHOGENETIC ASPECTS OF CARDIOPULMONAL REMODELING IN PATIENTS WITH COPD**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal diseases №2, clinical immunology and allergology**

**Introduction.** According to WHO, the number of patients with chronic obstructive pulmonary disease (COPD) is extremely increasing over the world. Long-term persistence of bacterial and viral pathogens contributes to the immunological disorders, which have a major importance in chronic inflammatory process in the broncho-pulmonary system.

**The aim** of the study was to determine the levels of immunoglobulins IgG, IgM, IgA of patients with COPD and to investigate their relations to echocardiography and spirometry parameters of heart and lungs.

**Materials and methods.** We examined 32 patients diagnosed with COPD of the II and III stage with mean age  $68.7 \pm 4.41$  years (GOLD, 2011). The first group consisted of 13 (40.6 %) patients with the II stage of COPD, the 2nd group - 11 (34.3%) patients with III stage of COPD. The control group consisted of 15 healthy donors without any respiratory diseases. Respiratory function was determined by spirometry. All patients were submitted echocardiography. The concentration of immunoglobulins IgA, Ig M, Ig G was determined by ELISA.

**Results.** Patients with COPD compared with the control group had a significant ( $p < 0.001$ ,  $p < 0.005$ ) decrease in  $FEV_1$ , VC, Tiffno index, MVF25, MVF 50, MVF 75, LVEF and increased EDV, ESV, EDS, ESS. When comparing groups of patients with the II and III stages of COPD more expressed changes were observed in the III stage of disease. Immunoglobulins IgM were elevated in both groups comparing with the control group ( $p < 0.001$ ). The 2<sup>nd</sup> group had higher levels of IgG ( $12.9 \pm 1.6$  mmol/l to  $11.7 \pm 1.1$ ) and IgA ( $2.3 \pm 0.03$  to  $2.08 \pm 0.06$ ) comparing to the 1<sup>st</sup> group ( $p < 0.005$ ). The indirect correlation was observed between  $FEV_1$  and immunoglobulins Ig G ( $r = -0,38$ ), Ig A ( $r = -0,31$ ) and Ig M ( $r = -0,32$ ) for all patients with COPD, suggesting that these classes of antibodies play a great role in pulmonary function impairment. The left ventricle ejection fraction was vice versa correlated with IgG ( $r = -0.43$ ) while stroke volume of the heart – with Ig M ( $r = -0,38$ ) in studied patients.

**Conclusions.** Chronic obstructive pulmonary disease causes profound disturbances in humoral immunity, associated with structural and functional changes in the lungs and the heart.

**Etukudo Ime Ime, Ashcheulova T.**

**BRIEF HISTORICAL REVIEW OF MAGNETIC RESONANCE IMAGING**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Propedeutics to Internal Medicine Department N1, Basis of Bioethics and Biosafety**

**Introduction.** Magnetic resonance imaging (MRI) is an imaging technique used primarily in medical settings to produce high quality images of the inside of the human body. MRI is based on the principles of nuclear magnetic resonance (NMR), a spectroscopic technique used by scientists to obtain microscopic chemical and physical information about molecules. The technique was called magnetic resonance imaging rather than nuclear magnetic resonance imaging (NMRI) because of the negative connotations associated with the word nuclear in the late 1970's. MRI started out as a tomographic imaging technique,



that is it produced an image of the NMR signal in a thin slice through the human body. MRI has advanced beyond a tomographic imaging technique to a volume imaging technique. Felix Bloch and Edward Purcell, both of whom were awarded the Nobel Prize in 1952, discovered the magnetic resonance phenomenon independently in 1946. In the period between 1950 and 1970, NMR was developed and used for chemical and physical molecular analysis. In 1971 Raymond Damadian showed that the nuclear magnetic relaxation times of tissues and tumors differed, thus motivating scientists to consider magnetic resonance for the detection of disease.

**Results.** In 1973 the x-ray-based computerized tomography (CT) was introduced by Hounsfield. This date is important to the MRI timeline because it showed hospitals were willing to spend large amounts of money for medical imaging hardware. Magnetic resonance imaging was first demonstrated on small test tube samples that same year by Paul Lauterbur. He used a back projection technique similar to that used in CT. In 1975 Richard Ernst proposed magnetic resonance imaging using phase and frequency encoding, and the Fourier Transform. This technique is the basis of current MRI techniques. A few years later, in 1977, Raymond Damadian demonstrated MRI called field-focusing nuclear magnetic resonance. In this same year, Peter Mansfield developed the echo-planar imaging (EPI) technique. This technique will be developed in later years to produce images at video rates (30 ms / image). Edelstein and coworkers demonstrated imaging of the body using Ernst's technique in 1980. A single image could be acquired in approximately five minutes by this technique. By 1986, the imaging time was reduced to about five seconds, without sacrificing too much image quality. The same year people were developing the NMR microscope, which allowed approximately 10  $\mu\text{m}$  resolution on approximately one cm samples. In 1987 echo-planar imaging was used to perform real-time movie imaging of a single cardiac cycle. In this same year Charles Dumoulin was perfecting magnetic resonance angiography (MRA), which allowed imaging of flowing blood without the use of contrast agents. In 1991, Richard Ernst was rewarded for his achievements in pulsed Fourier Transform NMR and MRI with the Nobel Prize in Chemistry. In 1992 functional MRI (fMRI) was developed. This technique allows the mapping of the function of the various regions of the human brain. Five years earlier many clinicians thought echo-planar imaging's primary applications were to be in real-time cardiac imaging. The development of fMRI opened up a new application for EPI in mapping the regions of the brain responsible for thought and motor control. In 1994, researchers at the State University of New York at Stony Brook and Princeton University demonstrated the imaging of hyperpolarized  $^{129}\text{Xe}$  gas for respiration studies. In 2003, Paul C. Lauterbur of the University of Illinois and Sir Peter Mansfield of the University of Nottingham were awarded the Nobel Prize in Medicine for their discoveries concerning magnetic resonance imaging.

**Conclusion.** MRI is clearly a young, but growing science.

### **Gabisoniia T.**

#### **ADIPOCYTOKINESCHANGE IN PATIENTS WITH STABLE ANGINA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine №2, clinical immunology and allergology**

**Introduction.** The most widespread among all cardiovascular diseases is the ischemic heart disease (IHD), which is found in 58% of patients. Despite significant progress in treatment, the prevalence of stable angina grows and reaches 20% among population.



**Aim.** In this connection we have established the objective of research – to define the imbalance of adipocytokines (adiponectin and visfatin) in patients suffering from stable angina and concomitant obesity.

**Material and methods.** We examined 110 patients with stable angina (Functional Classes II – III). All patients were divided into 2 groups: 1<sup>st</sup> group – patients with stable angina with concomitant obesity (n=80), 2<sup>nd</sup> group – patients with stable angina without obesity (n=30). The average age of the patients suffering from stable angina with concomitant obesity was  $66,45 \pm 1,08$  years old, and of the 2 group -  $65,87 \pm 1,98$ . 66 men (60,95%) and 44 women (39,05%) have been examined. The control group comprised 20 practically healthy people.

**Result.** According to the results of our study among the patients with stable angina with concomitant obesity the level of adiponectin is 17% lower and visfatin level is 9,3 % higher in comparison to patients without obesity. Adipokine exchange dysfunction contributes to development of atherosclerosis in patients suffering from stable angina with concomitant obesity through exhaustion of antiatherogenic capabilities of adiponectine together with activation of lipiddis orders with the help of visfatin, which is confirmed by the detected correlation ties.

**Gaponova O.G., Frolova-Romanyuk E.Yu., Abdulla Manar**

**GASTRIN-17 AND PEPSINOGEN-I LEVELS DEPENDING ON THE GRADE AND LOCALIZATION OF ATROPHY IN PATIENTS WITH HELICOBACTER PYLORI-ASSOCIATED CHRONIC GASTRITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine No. 1**

**Introduction.** The diagnosis of atrophic gastritis was mainly made before by endoscopy and histology. In recent years determination of serum pepsinogen, gastrin-17 and Helicobacter pylori (H.pylori) IgG antibodies is regarded as tests for screening of chronic atrophic gastritis. But it is not known about possibility to determine localization and grade of atrophy by using non-invasive diagnostics.

**Aim.** To evaluate the use of serum PG-I and G-17 in topical diagnostics and severity of atrophy in patients with chronic atrophic gastritis

**Materials and methods.** We examined 150 patients with chronic gastritis, associated with H.pylori, included 100 persons with chronic atrophic gastritis and 50 persons with non-atrophic gastritis aged from 35 to years ( $49 \pm 11,0$ ). Pepsinogen I (PG-I) and gastrin-17 (G-17) serum levels were estimated by ELISA.

**Results.** Serum G-17 level of ( $4,15 \pm 0,48$ ) pmol/l in patients with antral atrophy was significantly lower compared with ( $18,67 \pm 0,75$ ) pmol/l in non-atrophic patients ( $p < 0,05$ ). G-17 level negatively correlated with grade of atrophy in gastric mucosa: ( $4,85 \pm 0,95$ ) pmol/l in patients with mild atrophy, ( $2,47 \pm 0,48$ ) pmol/l in moderate atrophy and ( $1,32 \pm 0,26$ ) pmol/l in severe atrophy, but this difference was not significant. Although that correlation analysis by Spearman showed significant negative correlation with coefficient  $\rho = (-0,69)$ ,  $p < 0,05$ . Similar dynamics was shown for PG-I. Patients with atrophy of gastric corpus had lower PG-I concentration compared with non-corporeal atrophy and non-atrophic patients. In above mentioned categories of patients levels of PG-I were ( $20,61 \pm 8,50$ )  $\mu\text{g/l}$ , ( $75,23 \pm 9,48$ )  $\mu\text{g/l}$ , and ( $96,23 \pm 12,71$ )  $\mu\text{g/l}$  respectively. PG-I level also depended on the grade of corporeal atrophy. In mild atrophy it averaged out at



( $34.71 \pm 6.95$ )  $\mu\text{g/l}$ , in moderate atrophy ( $19.63 \pm 5.49$ )  $\mu\text{g/l}$ . These results were significantly lower compared with non-atrophic patients ( $p < 0.05$ ), but there were no difference revealed between mild and moderate atrophy. Negative correlation between serum PG-I and grade of atrophy in gastric mucosa was found: correlation analysis by Spearman calculated the coefficient of  $\rho = (-0,56)$ ,  $p < 0.05$ . Correlation analysis of PG-I, G-17 and histological changes in gastric mucosa revealed more strong correlation relationship between PG-I and corporeal atrophy compared with relationship between G-17 and antral atrophy. Obtained data we can explain by more frequent episodes of "pseudoatrophy" in atrophic areas of atrophy compared with gastric corpus. In the case of "pseudoatrophy" inflammation infiltration is so expressed that during visual estimation of gastric mucosa the number of secretory glands in the field of vision is less than in non-inflamed areas.

**Conclusion.** Low serum PG-I and G-17 levels can be used as biomarkers of corporeal and antral atrophy respectively. They revealed negative correlation with the grade of atrophy of corresponding part of stomach. PG-I is more strong marker of corporeal atrophy compared with reliability of G-17 in relationship to antral atrophy because of higher rate of "pseudoatrophy" in antrum vs corpus.

**Goptsii O., Yakovenko Y., Stroga I.**

**DISORDERS OF CARBOHYDRATE AND LIPID METABOLISM IN PATIENTS WITH ARTERIAL HYPERTENSION AND OBESITY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of the internal medicine №1**

**Intorduction.** Dyslipidemia frequently occurs in patients with arterial hypertension (AH), which together with other metabolic disorders can significantly complicate the course of the disease and contribute to the development of further complications.

**The aim** of the investigation is to study lipid-carbohydrate metabolism in hypertensive patients depending on the abdominal type of adipose tissue distribution.

**Material and methods.** We examined 123 middle-aged,  $53.87 \pm 0.92$  years old, patients suffering from AH. All patients were under detailed clinical, anthropomorphic (height, weight, body mass index (BMI), waist circumference (WC)) and laboratory studies. Insulin level in the blood serum was diagnosed by a set of the next reagents: Insulin ELISA (DRG Instruments GmbH, Germany), C-peptide level - C-peptide (Sandwich) ELISA (DRG Instruments GmbH, Germany). To diagnose the level of glucose, triglycerides (TG), total cholesterol (TC) and high-density lipoprotein cholesterol (HDLC) we used the biochemical method. With the help of the calculation method we defined NOMA index, low-density lipoprotein cholesterol (LDLC), very low-density lipoprotein cholesterol (VLDLC) and atherogenic index (AI).

**Results.** All patients were divided into two groups depending on the abdominal obesity type. The first group included patients without abdominal obesity (AO) ( $n = 36$ ) - WC was  $93.13 \pm 1.54$  cm (women's WC was  $80.37 \pm 1.84$  cm, men's -  $96.78 \pm 1.23$  cm); the second group included patients with abdominal obesity ( $n = 87$ ) -  $102.58 \pm 0.90$  cm (women's WC was -  $99.83 \pm 0.80$  cm men's WC was  $112.42 \pm 1.59$  cm.). While comparing the average arterial tension (AT) between the groups it was found that patients belonging to the second group had significantly higher arterial tension index than the index of arterial



tension the patients of the first group had,  $p < 0.05$ . Insulin ( $18.21 \pm 1.80$  mkgU / ml) and NOMA index level ( $4.09 \pm 0.46$  cu) in the blood serum of the patients who suffer from abdominal obesity, was also above the same indices ( $10.32 \pm 1.27$  mkgU / ml) and ( $2.00 \pm 0.22$  cu), respectively, it was above the indices the group of patients without AO had,  $p < 0.05$ . Patients with the abdominal type of adipose tissue distribution were characterized by significantly high indices of total cholesterol lipid metabolism ( $10.0 \pm 0.08$  mmol / L), LDLC ( $3.83 \pm 0.08$  mmol / L), VLDLC ( $1.76 \pm 0.03$  mmol / L), TG ( $1.76 \pm 0.03$  mmol / L), AI ( $3.31 \pm 0.13$  cu) in comparison with patients without signs of abdominal obesity: TC ( $5.48 \pm 0.14$  mmol / L), LDLC ( $3.13 \pm 0.15$  mmol / L), VLDLC ( $0.70 \pm 0.16$  mmol / L), TG ( $1.55 \pm 0.06$  mmol / L), AI ( $2.39 \pm 0.12$  cu),  $p < 0.05$ . The HDLC level, on the contrary, was significantly lower in patients of the second group ( $1.47 \pm 0.02$  mmol / L, women -  $1.52 \pm 0.02$  mmol / L, men -  $1.31 \pm 0.07$  mmol / L), in contrast to patients of the first group where the same index was ( $1.64 \pm 0.03$  mmol / L, women -  $1.75 \pm 0.03$  mmol / L, men -  $1.61 \pm 0.03$  mmol / L),  $p < 0.05$ .

**Conclusion.** The results have shown a more apparent atherogenic dyslipidemia tendency and disorders of carbohydrate metabolism in hypertensive patients with abdominal obesity compared to hypertensive patients without abdominal obesity. This fact may indicate that patients with abdominal obesity are at a higher risk of diseases associated with atherosclerosis in comparison with patients whose waist measurement is within normal limits.

**Halo Azad Khidwrbagi, Smer Mutlag, Anna Titova**  
**AZITHROMYCIN AND LEVOFLOXACIN USE AND INCREASED RISK OF**  
**CARDIAC ARRHYTHMIA AND DEATH**

**Kharkiv national medical university, Kharkiv, Ukraine**

**The department of cardiology and Clinical pharmacology**

**Aim.** Our study shows that Azithromycin use has been associated with increased risk of death among patients at high baseline risk, but not for younger and middle-aged adults. The food and drug administration issued a public warning on azithromycin, including a statement that the risks were similar for levofloxacin.

**Material and methods.** We conducted a retrospective cohort study among US veterans to test the hypothesis that taking azithromycin or levofloxacin would increase the risk of cardiovascular death and cardiac arrhythmia compared with persons taking amoxicillin. We studied a cohort of US veterans (mean age, 56.8 years) who received an exclusive outpatient dispensation of either amoxicillin ( $n=979,380$ ), azithromycin ( $n=594,792$ ), or levofloxacin ( $n=201,798$ ) at the Department of Veterans Affairs between September 1999 and April 2012. Azithromycin was dispensed mostly for 5 days, whereas amoxicillin and levofloxacin were dispensed mostly for at least 10 days.

**Results.** During treatment days 1 to 5, patients receiving azithromycin had significantly increased risk of death (hazard ratio [HR]=1.48; 95% CI, 1.05-2.09) and serious arrhythmia (HR=1.77; 95% CI, 1.20-2.62) compared with patients receiving amoxicillin. On treatment days 6 to 10, risks were not statistically different. Compared with patients receiving amoxicillin, patients receiving levofloxacin for days 1 to 5 had a greater risk of death (HR=2.49, 95% CI, 1.7-3.64) and serious cardiac arrhythmia (HR=2.43, 95% CI, 1.56-3.79); this risk remained significantly different for days 6 to 10 for both death (HR=1.95, 95% CI, 1.32-2.88) and arrhythmia (HR=1.75; 95% CI, 1.09-2.82).



**Conclusions.** Compared with amoxicillin, azithromycin resulted in a statistically significant increase in mortality and arrhythmia risks on days 1 to 5, but not 6 to 10. Levofloxacin, which was predominantly dispensed for a minimum of 10 days, resulted in an increased risk throughout the 10-day period.

**Halo Azad Khidwrbagi, Arkhipkina O.**

### **OHP IN MODERN WORK ENVIRONMENT AND TRANSPORTATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**The department of Internal and Occupation diseases**

**Introduction:** The main diagnostic and study for analysis of occupational health problems relation to factors of modern work environment is presented. Including health of airlines pilots, trains and stewards transport workers, video display terminal workers, travels and its relation to work environment.

**Aim.** To investigate and evaluate influence of changing occupational environment to workers' health.

**Material and methods.** Investigation include study of Evaluation of work environment as maintain, influence and assessment of health, psychological and ophthalmological and of workers as well as morbidity studies were performed.

**Results.** Those pathological that related to Occupational environment of transport workers is related with high levels of noise, vibration, carbon monoxide, mercury, welding aerosols, and dust. Main diseases for transport workers are upper respiratory tract and lung diseases, accidents, CVD and musculoskeletal disorders. Cases of temporal morbidity for pilots and stewards are upper respiratory tract and lung diseases, accidents, intoxications and nervous system diseases. The main effects of video display terminal on operators' health are vision fatigue and musculoskeletal disorders. Ophthalmologic symptoms and vision fatigue are related to changes in eyes and central nervous system fatigue, as well as syndrome of "dry eyes".

**Conclusions.** Due to environmental and over load of different kind of occupational disease this may lead to changeable affecting employees' health with specific changes, which depend upon work character, experience and worker's age.

**Honchar O., Ivanchenko S.**

### **ROLE OF INTERLEUKIN 33 IN LEFT VENTRICULAR STRUCTURAL AND FUNCTIONAL REMODELING IN HYPERTENSIVE PATIENTS WITH OBESITY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of propedeutics to internal medicine N1**

**Introduction.** To investigate interrelations between interleukin 33 (IL-33) and  $1\beta$  (IL- $1\beta$ ) serum levels, left ventricular (LV) remodeling and diastolic dysfunction (DD) in hypertensive patients with obesity.

**Material and methods.** 80 hypertensive patients (51 obese) underwent transthoracic echocardiography. IL-33 and IL- $1\beta$  serum levels were estimated using ELISA.

**Results.** IL-33 and IL- $1\beta$  were higher in hypertensive patients ( $p < 0,001$ ), independently of BMI. Increase of IL-33  $> 73$  pg/ml, IL- $1\beta$   $> 25$  pg/ml was associated with highest LV myocardial mass index (MMI) (160,5 (142,8;185,8) g/m<sup>2</sup>,  $p < 0,05$ ), moderate decrease in E' velocity (9,95 (8,32;10,60) cm/sec), relatively low PWP (9,23 (8,83;13,03)



mm Hg) and 70,0% prevalence of LVDD. Increase of IL-1 $\beta$ >20 pg/ml with IL-33<71 pg/ml was characterized by relatively low LV MMI (116,9 (104,4;163,1) g/m<sup>2</sup>), lowest E' (7,68 (6,50;9,67) cm/sec, p<0,01), highest PWP (12,26 (10,72;13,12) mm Hg, p<0,05) and highest rate of DD (85,0%). Increase of IL-33>71 pg/ml with IL-1 $\beta$ <25 pg/ml was associated with MMI of 121,4 (111,7;140,5) g/m<sup>2</sup>, highest E' (11,04 (9,49;12,00) cm/sec), lowest PWP (9,07 (7,04;11,51) mm Hg) and lowest prevalence of LVDD (66,7%). IL-33<71 pg/ml with IL-1 $\beta$ <20 pg/ml had intermediate characteristics: LV MMI of 137,4 (121,3;157,8) g/m<sup>2</sup>, E' of 9,95 (8,30;12,20) cm/sec, PWP of 11,20 (9,55;12,33) mm Hg, and 71,1% rate of DD.

**Conclusion.** Significant increase in IL-33 and IL-1 $\beta$  levels in hypertensive patients independently of BMI was revealed. Increase in both cytokines' levels was associated with highest rates of LVH and DD. Prevalent increase in IL-1 $\beta$  was connected to the worst state of diastolic function despite low rates of hypertrophy. Prevalent increase in IL-33 had the most favorable influence on the severity of LVH as well as diastolic filling.

**Ibiba Douglas Boma, Demydenko A.**

### **ECG AS AN INDISPENSABLE TOOL FROM EINTHOVEN TO TODAY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of propedeutics to internal medicine N1**

**Introduction.** Diagnostic Medicine has gradually metamorphosed from the use of ancient/orthodox instruments/machines to the use of modern and digital instruments and machines (eg computers, MRI equipment, ELISA machines, ECG –electrodes, Robots in surgery).The history of ECG is dated back to the early 20<sup>th</sup> century. The need for modern diagnostic equipments in Medicine cannot be overemphasized.

**Results.** Willem Einthoven invented the first practical Electrocardiogram in 1903 and received a Nobel prize in Medicine in 1924 for it. Although the capillary electrometer helped to initiate the study of the heart's electrical activity, Einthoven was unable to boost the device's capabilities to acceptable diagnostic levels. He therefore began work with another instrument—the string galvanometer. An early article that Einthoven wrote about the string galvanometer's registration of the human electrocardiogram was published in a Festschrift book in 1902. When Einthoven began to devise his electrocardiograph, he was unaware that a similar instrument had been constructed in 1897 by the French engineer Clément Ader, for the purpose of communications. Ader's apparatus had an extremely low sensitivity that was inadequate for clinical electrocardiography. Nonetheless, after Einthoven learned of this instrument, he cited Ader's work in a 1901 paper, “Un nouveau galvanometer,” in order to credit all persons known to have contributed any idea associated with Einthoven's invention. The string galvanometer comprised a thin, silver-coated quartz filament that passed between 2 electromagnets. An electric current passed through the filament and produced a movement that projected a shadow, which was magnified and registered. The string galvanometer provided readings of higher quality than its precursor, the capillary electrometer. This was due to the thinness and minimal mass of the string and to the ability of the operator to adjust tension to regulate sensitivity and response time. According to Barold,

**Conclusion.** Einthoven achieved such amazing technical perfection that many modern electrocardiographs do not produce recordings of such high quality. Today, the modern ECG monitors are computerized data acquisition and display systems that typically provide



continuous monitoring of multiple patient parameters. Most can display (1) the ECG, (2) respirations/impedance pneumography (via the ECG leads), (3) blood pressure (continuous invasive or intermittent noninvasive) and (4) oxyhemoglobin saturation (SpO<sub>2</sub>). Bedside units are usually modular in design. In these systems, additional modules can be added to provide monitoring of other parameters, such as end-tidal CO<sub>2</sub>.

**Iermak A.S., Zaikina T.S.**

**VESSELS TONUS REGULATION AND FUNCTIONAL CONDITION OF THE LEFT VENTRICLE IN PATIENTS WITH ACUTE MYOCARDIAL INFARCTION AND OBESITY.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine №2, clinical immunology and allergology**

**Introduction.** Ischemic heart disease (IHD) is one of the most important problems of modern cardiology. The most dangerous complication of IHD is acute myocardial infarction (AMI). The imbalance of vasoconstrictional and vasodilatational systems in patients with AMI and concomitant obesity plays a big dramatic role in progressing of these diseases.

**The purpose** of the present research is to increase the efficiency of diagnosis and treatment of AMI with concomitant obesity based on estimation of vasoconstrictional (copeptyn) and vasodilatational (MR-proADM) reactions imbalance and study their prognostic significance in the development of an unfavorable course of AMI.

**Results:** it is planned to examine 105 patients with AMI, among which 75 persons with obesity and 30 patients with normal body weight. The control group will consist of 20 healthy individuals. Clinical and laboratory research will include determination of the following indicators: body mass index, qualitative and quantitative determination of markers of AMI (troponin I, creatine phosphokinase), ELISA determined: copeptyn, MR-proADM, indicators showing the lipid profile, research implementation instruments like an echocardiography (systolic and diastolic dysfunction). All patients will be treated with standard therapy methods, including prescription of zofenopril to one group of patients.

**Conclusions:** Analyzing the presence and nature of copeptyn and MR-proADM changes in patients with obesity under condition of the presence of complications of AMI and evaluation of markers of vasoconstrictional reactions based on the definition of copeptyn and vasodilatational reactions by determining MR-proADM influenced the treatment of patients with AMI and obesity using zofenopril as a part of standard therapy will be new in this research. These types of problems require a more detailed study and more research.

**Ithar Mohamed Taha, Khulood Ebrahim, Zolotaikina V.**

**CLINICAL FEATURES OF BRUGADA SYNDROME**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Aim:** was to investigate age of first onset of electrocardiographic changes of long QT interval (QT) syndrome type 3 (LQT3) and Brugada syndrome (BS), based on a single SNC5A mutation.

**Introduction:** The QT in LQT3 is prolonged during bradycardia. It is not clear yet if this is obvious in young children with a relative fast heart rate (HR).



**Material and methods:** Thirty-six patient with an SNC5A gene mutation (1795insD) and 46 non-carrier siblings were investigated. In different age groups, HR, QT, QTc, and ST-segment elevation on a 12-lead electrocardiogram (ECG), and HR, QT, QTc, and  $\Delta$ QT after the longest pause in a Holter (recording) were evaluated.

**Results:** In all age groups, HR at rest tended to be lower in carriers than in non-carriers, and QT was longer in carriers than in non-carriers. The Brugada phenotype was found >5 years. Gender specific differences were not identified. The QT at lower HR and  $\Delta$ QT were longer in carriers than in non-carriers. A QTc of  $\geq 0.44$  s at the lowest HR (sensitivity 100%; specificity 88.4%) and  $\Delta$ QT  $\geq 60$  ms (sensitivity 100%; specificity 82.6%) were good predictors for having LQT3.

**Conclusions:** We conclude that electrocardiographic characteristics of LQT3 and BS show age-dependent penetrance. A QT prolongation and conduction disease were present from birth onwards, whereas ST-segment elevation only developed >5 years. Good tools for clinical diagnosis of LQT3 in this family are QTc at the lowest HR and  $\Delta$ QT after a pause in a Holter, even at very young age.

**Ivanchenko S., Honchar O., Bezuglaya K.**

**AGE PECULIARITIES OF CIRCADIAN HEART RHYTHM IN HOLTER MONITORING ADMINISTRATION IN PATIENTS WITH HYPERTENSION ASSOCIATED WITH OBESITY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Propedeutics to Internal Medicine №1, basis of Bioethics and Biosafety Department**

**Introduction.** Circadian index (CI) is a specific feature of Holter monitoring (HM) which represents steadiness of daily cardiac rhythm structure. Normal CI value comprises  $1,32 \pm 0,06$  (from 1,24 to 1,44).

**Aim:** to analyze peculiarities of circadian cardiac rhythm in patients with hypertension associated with obesity in different age groups.

**Materials and methods:** 60 patients with hypertension (28 men and 32 women) aged from 40 to 76 years were examined. The following age groups were formed according to WHO classification (1997): young <45 years (4 patients,  $40,5 \pm 3,4$  y.o.) and middle age 45-59 years (27 patients,  $53,2 \pm 5,1$  y.o.); old 60-74 (25 patients,  $68,4 \pm 5,7$  y.o.) and senile age 75-90 years (4 persons,  $75,1 \pm 2,3$  y.o.). Of them 5 first-group patients had normal body weight and 26 patients were overweight. Ten young patients ( $32,7 \pm 4,2$  years) without hypertension were also examined. The patients underwent HM which by means of SDM 23 unit within 24 hours with the following analysis of the obtained results.

**Results:** the obtained results indicated that CI values were normal ( $1,28 \pm 0,04$ ) in all the patients with normal body mass on the background of sinus rhythm, presence of non-pathological amount of extrasystoles in the group of young and middle aged patients. 70,58% of the examined overweight patients with hypertension were found to have smoothing of cardiac circadian profile (CI =  $1,15 \pm 0,04$   $p < 0,05$ ). In 29,4% patients of this group CI value was within normal limits (CI =  $1,33 \pm 0,02$ ). In old and senile patients, normal CI values were observed in 80% ( $p < 0,05$ ) hypertensive patients with normal body mass. In 79,17% second-group patients CI was reduced (CI =  $1,11 \pm 0,06$   $p < 0,05$ ). Young patients without hypertension were found to have normal profile of circadian rhythm in 60% cases (CI =  $1,3 \pm 0,02$ ), and 40% developed its increase (CI =  $1,46 \pm 0,02$ ).



**Conclusions:** Holter monitoring data gave evidence that circadian daily cardiac rhythm impairment with a decrease in circadian index of heart rate by less than 1,2 is typical for obese patients with hypertension. This tendency is more expressed in patients of elderly and senile age.

**Ivashchenko R.O., Vasyuk E.S.**

**ARTERIAL HYPERTENSION AT YOUNG AGE: DIAGNOSTIC FEATURES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine Propaedeutic №2**

**Supervisor - Assistant Borzenko A.B**

**Introduction.** Every year the number of patients with hypertension is growing steadily. The diagnosis of "hypertension " is one of the most common therapeutic clinic and justified for people over 50 - years , burdened with family history , ocular vascular changes " bottom (hypertensive antipathy of retinal vessels) , instrumentally confirmed atherosclerotic changes of the arteries, aortic valve , etc. However, in young patients resistant increased blood pressure (BP) more than 140 /90 mm Hg requires finding the etiological factor of hypertension. The doctor begins to exclude kidney disease and burst blood vessels, thyroid, adrenal glands as the main reasons for the so-called symptomatic hypertension. In some cases, this way of diagnostic search is successful, but there are more patients, who have hypertension as the only objective symptom.

**Material and methods.** So, on the basis of the Department of the reductive treatment we have examined nine patients, whose average age was 31 years, systolic - 151 mm Hg, diastolic- 92 mm Hg, heart rate - 78 minutes / duration of high blood pressure - an average of 2.5 years, according to a history of hypertension is not burdened. All of them have a full range of laboratory and instrumental examinations prescribed for patients with hypertension. Daily monitoring showed persistent systolic blood pressure - hypertension diastolic of the 1st degree and unbalanced autonomic homeostasis. None of patients found any causative factor of hypertension. In 7 of 9 - dystonic symptoms vascular changes (according to Doppler ultrasound ekstra - and intracranial vessels, reoenpsfalografii, ehoentsefalografii) .

**Results.** Thus we can assume that the increase in blood pressure at young age may be due to autonomic dysfunction with a predominance of sympathetic nervous system activity. Diagnosis of hypertension in such cases is unfounded. In the treatment of such patients should be a priority change in lifestyle - full, balanced and reusable eating, struggle with adynamia, physiotherapy exercises, swimming, walking outdoors, adherence to labor / leisure, limit time spending at the computer and similar gadgets psihorelaksatsiya. Therapist work in the treatment of patients with vegetative - vascular dystonia should be supplemented with the participation of the therapist: the inclusion of psychotherapeutic methods of treatment, patient education auto-training, the use of sedatives, according to testimony - the prescription of antidepressants, tranquilizers (especially in patients with symptoms of liking - adrenal crises) . Also can be successful and physiotherapy: bubble baths, electro sleep, light therapy, etc. And only the ineffectiveness of these measures should be administered individualized drug therapy aimed at lowering blood pressure.



**Kadikova O., Borovyk K.**

**ROLE OF ADIPOSE TISSUE HORMONES IN THE DEVELOPMENT OF THE METABOLIC DISORDERS IN PATIENTS WITH ARTERIAL HYPERTENSION AND DIABETES MELLITUS TYPE 2.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** According to the World Health Organization (WHO), cardiovascular diseases (CVD) are the most widespread and lead as the cause of death in the most of developed countries, including Ukraine. Arterial hypertension, especially in combination with diabetes mellitus type 2, takes the fundamental place among the risk factors of CVD, because the comorbidity of these pathologies has the common pathogenetic links and potentiates cardiovascular risk.

**Aim:** to study metabolic disorders in patients with the cardiovascular diseases on the basis of investigating the nature of insulin sensitizers and antagonists changes.

**Materials and methods.** We examined 55 patients with arterial hypertension who were divided into groups depending on the presence of diabetes mellitus type 2. The mean age was  $59 \pm 1,2$  years old. The level of resistin was determined by ELISA using a commercial test system manufactured by «BioVendor» (Czech Republic). The content of adiponectin in the patients' serum was defined by using Assay Max Human Adiponectin ELISA Kit, manufactured by «ASSYPRO» (USA).

**Results.** According to the results of our study the level of adiponectin was  $4,52 \pm 0,12$  mg/ml, and resistin  $19,00 \pm 0,42$  mg/ml in patients with arterial hypertension and diabetes mellitus type 2. To compare the group of patients who suffered from hypertension without diabetes mellitus type 2 had the values of these indicators  $6,83 \pm 0,10$  mg/ml and  $14,90 \pm 0,29$  mg/ml respectively.

**Conclusion.** The results of our research showed that the level of adiponectin was 29,15% significantly lower in patients with comorbidity of hypertension and diabetes mellitus type 2 compared to hypertensive patients without diabetes and 62.55 % lower than in the control group ( $p < 0.001$ ). Whereas the level of resistin, on the contrary, was 21.58 % significantly higher in patients with hypertension and diabetes mellitus type 2 compared to patients without diabetes and 48% higher than in the control group ( $p < 0.001$ ). These results suggest that adipocytokines are the factors of the insulin resistance development in patients with hypertension and diabetes mellitus type 2.

**Kalinichenko A., Glebova O., Tytova G.**

**ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH POSTINFARCTION CARDIOSCLEROSIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal diseases №2, clinical immunology and allergology**

**Introduction.** Today atherosclerosis is a predictor of ischemic heart disease, which is one of the leading causes of mortality in cardiovascular diseases.

**Aim** - to determine the effect of atherosclerosis on endothelial dysfunction on the background of endothelin-1 levels in the pathogenesis of postinfarction cardiosclerosis.

**Materials and methods.** The study included 56 patients with Q- positive myocardial infarction (MI), who were treated at the Kharkiv City Hospital # 27. Determination of the endothelin-1 in plasma was carried out using ELISA.



**Results.** The level of endothelin-1 in patients with postinfarction cardiosclerosis without significant atherosclerotic changes was 10,12 ng/ml, and in patients suffering from postinfarction cardiosclerosis and significant expression of atherosclerotic changes, - 12,4 ng/ml, which exceeds the value of this indicator in patients without atherosclerosis at 2.28 ng/ml.

**Conclusions.** Thus, atherosclerotic changes in patients with postinfarction cardiosclerosis lead to more expressive manifestations of endothelial dysfunction.

**Karavanskaya I.L., Bogdanova O.A., Shevchenko O.A.**  
**RISK FACTORS, CLINICAL, GENDER AND AGE CHARACTERISTICS IN**  
**PATIENTS WITH CHRONIC CORONARY ARTERY DISEASE WITH**  
**ANGIOGRAPHIC INTACT CORONARY ARTERIES**  
**SE "Dnipropetrovsk Medical Academy of Health Ministry of**  
**Ukraine"(Department of Hospital Therapy № 1 and occupational diseases),**  
**Dnipropetrovsk, Ukraine**

**Introduction.** Mortality from diseases of the circulatory system is about 65.8% in Ukraine, 71.1% of them belong to the contribution of ischemic heart disease (IHD). Among the causes of IHD first place is occupied by atherosclerotic changes in the coronary arteries (CA) of the heart. However, due to different sources 12-18% of patients with typical clinical picture has got intact or only slightly affected CA detected during coronary angiography, so that requires further investigation of the rational treatment and prevention.

**Aim:** To determine the special aspects of frequency features of cardiovascular risk factors of cardiovascular complications, clinical course of chronic ischemic heart disease and changes in laboratory parameters which belong to patients of different age groups and sex with angiographic intact CA of the heart.

**Materials and methods:** A histories retrospective analysis of 474 patients with IHD with age from 40 to 75 years (mean age,  $M \pm m - 57,7 \pm 0,50$  years) with disease duration from 1 to 32 years (mean duration of disease  $9,9 \pm 0,29$  years), who underwent coronary angiography. According to the criteria of inclusion and exclusion from the study were formed two groups of patients ( $n = 159$ ): the first group - patients with angiographic intact CA ( $n = 99$ ), including: male - 51 (51.5%), women - 48 (48.5%), the second group (control group) - patients with coronary arteries stenosis of 50-75% with single and double vessel lesions ( $n = 60$ ), including male - 35 (58.3%), women - 25 (41.7%). To analyze changes depending on the age all patients ( $n = 159$ ) were divided into 2 subgroups: the first one included 78 (49.1%) patients aged from 40 to 59 years, the second one included 81 (50.9%) patients older than 60 years. A survey on smoking status, presence of family history on early development of cardiovascular disease was carried out. All patients has got their body mass index (BMI) determined and blood pressure, heart rate, pulse measured. The necessary score of laboratory tests (complete blood count, lipid profile, C-reactive protein and creatinine serum) was executed. Glomerular filtration rate was calculated and results of ECG, echocardiography, coronary angiography were assessed. Probability of the differences between the two rows of variation of the results was assessed using Student's t criterion of parametric calculations. Critical significance level ( $p$ ) was taken  $\leq 0,05$ .

**Results:** According to the results of coronary angiographic studies, in 23.1% of cases intact CA were found in patients with symptoms of IHD. Risk factors of cardiovascular



disease such as arterial hypertension, BMI, dyslipidemia were identified in patients with intact CA. Patients with myocardial infarction (MI) in past medical history and intact coronary arteries have a combination of three risk factors: hypertension, dyslipidemia and increasing BMI, without a history of myocardial infarction - a combination of the two risk factors ( $p < 0.05$ ). A characteristic feature of most patients with intact CA (62.5%) are the trusted atypical manifestation of the angina pectoris syndrome. In both groups of IHD detected dyslipidemia, due to cholesterol LDL (LDL-C), with no difference between groups. A history of MI was associated with better control of dyslipidemia, which can be explained by a greater attention of physicians in this group of patients and adherence to statins use, unlike the group of patients with angiographic intact CA without MI. The age of patients with CA disease with angiographic intact CA on the background was associated with a greater prevalence of hypertension, atherosclerosis of major arteries of the head, BMI. Gender differences in these patients by a greater prevalence of hypertension and BMI in elderly women, and thus men - hypercholesterolemia and type 2 diabetes. The significant comorbidities in relation to coronary heart disease in women discovered thyroid disease and kidney disease.

**Conclusions.** The goal of therapeutic effects in patients with IHD in angiographic intact coronary arteries must be a strict control of hypertension, dyslipidemia and prevention of BMI increasing, which significantly reduces the risk of acute forms of IHD.

**Kawthar Sabbar**

### **CHANGES HEPATOBILIARY SYSTEM IN PATIRNTS WITH REVMATOID ARTRITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine № 3**

**Aim** - to determine the state of the hepatobiliary system in patients with rheumatoid arthritis (RA) .

**Material and methods.** We examined 37 patients ( 23 females and 14 males ) with systemic RA and duration  $9,2 \pm 3.3$  years and more, at the age of  $47 \pm 6,5$  years. Control group - 20 healthy individuals. The diagnosis was verified by ACR criteria . Examination was carried out according to standard protocols.

**Results.** Signs of the hepatobiliary system were identified in 32 patients (86.5 %). At the same time according to ultrasound by the gallbladder patients were identified : hypotension gallbladder - 14 patients (43.75 % ), hypertension in 7 ( 21.9% ), thickening of the walls of GB - 11 ( 34, 37 % ) ; sealing walls of GB - 9 ( 28.13 % ) ; hyperechogenicity - 15 ( 46.8 % ) ; heterogeneity bile - 8 ( 25.0 %). In the biochemical composition of bile were identified reduction of bilirubin and bile acids in amounts " B " and portions " C " of bile , and - high level of cholesterol , which is likely due to the violation of the concentration and excretory functions of gallbladder. Of the liver on ultrasound marked signs of its destruction, which was characterized by an increase in size (12 patients -/37 , 5%), an increase echodensity (11/ 34, 37 % ) , heterogeneity of structure ( 10/31 , 3%). In addition 12 patients (37.5% ) were observed manifestations syndrome " cytolysis " with a significant increase in serum levels of  $\gamma$  globulins , AST and ALT , in some cases - AP ( 8 patients - 25.0 %).

**Conclusions.** These data suggest that in patients with rheumatoid arthritis with prolonged duration of marked changes in the hepatobiliary system , which may be caused as



vistsertis development that is associated with immune disorders , and prolonged use of drugs. This definition determines the appropriateness of the functional state of the liver in patients with RA and recommendations of hepatoprotectors for prophylactic treatment of such violations.

**Kovalyova Ju.O., Kotluikh M.Yu.**

**AGE-RELATED ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH STABLE ANGINA PECTORIS AND OVERWEIGHT**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine № 2, Clinical Immunology and Allergology**

**Introduction.** It is known that nitric oxide is a local tissue hormone that maintains active vasodilation, and one of the major risk factors for atherosclerosis. However, the impact of this indicator in patients with stable angina pectoris (SAP) with overweight is poorly understood.

**The aim:** the study of metabolites of nitric oxide S-nitrozotioliv in patients with stable angina pectoris and overweight.

**Material and methods.** Patients were examined with SAP with overweight - 16 people and 46 SAP with obesity. The control group consisted of 20 persons. The study was conducted at the Kharkov hospital № 27. Determination of S-nitrozotioliv conducted by spectrophotometric method by technique Marzinzin M., et al., (1997) as modified Kovalyov A.M. and et al. Statistical analysis of the data was performed using the «Microsoft Excel», 2010 and Windows STATISTIKA 6.0.

**Results.** In patients with SAP and overweight, the level of metabolites of nitric oxide S- nitrozotiola was  $0,144 \pm 0,051$  mmol / L compared with the control group  $0,22 \pm 0,01$  mmol / L ( $p < 0.05$ ). The level of this indicator in patients with obesity and SAP was  $0,136 \pm 0,044$  mmol / L, which was significantly reduced compared with the control group and in patients with SAP and overweight ( $p < 0.05$ ). Also in patients 55-59 years, the metabolites of nitric oxide S- nitrozotioliv was lower at 1.77 % compared to the age group 54 years ( $p > 0,1$ ). In patients with SAP also been a nonsignificant reduction in metabolites of nitric oxide S- nitrozotioliv with age, with increased body weight by an average of 4.09 % ( $p > 0.1$ ) and 3.93% ( $p > 0.1$ ) without such. Persons of different age groups 60-74 years, the SAP with overweight level of S- nitrozotioliv was less than the control group by an average of 34.11 % ( $p < 0.05$ ) and higher than the value of this indicator with increased body weight by 5.6 % ( $p > 0,1$ ). In the age group over 75 years, the metabolites of nitric oxide S- nitrozotioliv was lower than in the control group average of 34.75 % ( $p < 0.05$ ) in patients with SAP and overweight and at the same time prevailed in the group with high weight body by an average of 10.08 % ( $p > 0.1$ ).

**Conclusion.** These results suggest that in the blood of patients with SAP and overweight marked reduction in the metabolites of nitric oxide S-nitrozotioliv blood, accession obesity helped to further reduce the concentration the metabolites of nitric oxide S-nitrozotioliv. It is noted that lower the metabolites of nitric oxide S-nitrozotioliv correlated with different age groups of patients.



**Kramarenko A.I.**

**PREDICTIVE VALUE OF ARRHYTHMIAS IN PATIENTS WITH ARTERIAL HYPERTENSION AND DIABETES MELITUS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine No. 3**

**Introduction.** The combination of the arterial hypertension (AH) and the diabetes melitus (DM) increases risk not only macrovascular complications - a stroke, a myocardial infarction, sudden death, atherosclerosis of peripheral vessels, but also microvascular - retinopathies, a nephropathy and a neyropatiya.

**Aim.** To study features of violation of a rhythm of heart at patients with the isolated arterial hypertension, diabetes and at their combination.

**Materials and methods.** 36 patients were enrolled in the study. All patients were divided in to the 3 groups: the 1st group - 12 patients with hypertonic disease (HD): 6 men and 6 women; middle age -  $56,3 \pm 3,5$  years, duration of HD- $10,2 \pm 4,3$  years. the 2nd group - 10 sick DM 2 types - 6 men and 4 women; middle age- $51,5 \pm 2,7$  years, DM duration -  $6,2 \pm 3,3$  years. the 3rd group of 14 patients, 7 men and 7 women with HD and DM 2 types; middle age -  $54,3 \pm 2.8$  years, HD duration -  $10,5 \pm 4,2$  years; DM -  $6,2 \pm 3,4$  years. Criteria of inclusion in research were existence at patients of the HD of the II stage of 2-3 degrees and DM 2 types in subcompensation stage. All patient conducted tool researches: daily monitoring of the electrocardiogram (DMECG) and daily monitoring arterial blood preasure (DMBP).

**Results.** When carrying out DMBP 3 types of the BP daily profile were allocated: with adequate (10 - 20%) night decrease BP (dipper); insufficient (less than 10%) night decrease (non-dipper) and with night increase the BP (night-peaker). When carrying out DMECG it is established that at patients with increase the BP violations of warm activity which were subjectively felt by patients were much more often noted. In group of patients with DM at a half of patients of arrhythmia weren't shown clinically and were revealed only by means of additional researches. In the analysis of the revealed ventricular and supraventricular violations of a rhythm it is established that ventricular arrhythmias were observed at patients with HD authentically more often: ventricular ekstrasistoliya at 84% of patients from the 1st group ( $p < 0,05\%$ ) and 92% - at patients from the 3rd group ( $p < 0,05$ ). Paroxysms of ventricular tachycardia are revealed at 65% of patients from the 1st group ( $p < 0,05$ ) and at 71% of patients from the 3rd group ( $p < 0,05$ ). At patients with DM it is reliable more often ( $p < 0,05$ ) supraventricular arrhythmias, such as a atrium ekstrasistoles at 84% and paroxysms of fibrillation of atriums at 37% were noted.

**Conclusions.** At sick HD supraventricular and ventricular ekstrasistoles which are subjectively felt by patients most often develop. At patients with DM asymptomatic violations of a rhythm that is caused by development of an autonomous vegetative neyropatiya are more often noted. The HD and DM combination considerably increases risk development of ventricular violations on a rhythm - ventricular ekstrasistoles, and also emergence of supraventricular arrhythmias, including paroxysmal fibrillation of atriums.

**Kudom-Agyemang M., Yankevich A.**

**POSTPRANDIAL HYPERINSULINEMIA, CORTISOL AND DYSLIPIDEMIA IN PATIENTS WITH ARTERIAL HYPERTENSION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine № 3**

**The aim** of study was to investigate the relationship between cortisol plasma concentration and some markers of metabolic state in patients of arterial hypertention.



**Material and method.** 80 patients with arterial hypertension (49 females and 31 males) and 12 healthy persons (7 females and 5 males) were enrolled in the study. The cortisol plasma concentration was determined by immunoenzyme assay. The insulin plasma concentration was determined by radioimmune assay. The degree of obesity was determined by body mass index. Data are presented as mean±standard deviation.

**Results.** The cortisol plasma level was lower in males than in females in the group of hypertensives ( $225.9 \pm 78.3$  vs.  $480.6 \pm 166.5$  nmol/l,  $p < 0.001$ ) and in the control group ( $172.5 \pm 38.2$  vs.  $475.6 \pm 157.0$  nmol/l). Moreover, hypertensive females, included in this study, had higher level of plasma insulin after 2 h of 75 glucose intake ( $56.8 \pm 40.2$  vs.  $39.0 \pm 27.8$   $\mu$ U/ml,  $p < 0.05$ ) and also higher body mass index ( $31.5 \pm 6.1$  vs.  $28.0 \pm 2.3$  kg/m<sup>2</sup>,  $p < 0.01$ ). In hypertensive females cortisol correlates positively with low density lipoprotein cholesterol ( $r = 0.36$ ,  $p = 0.011$ ) and negatively with high density lipoprotein cholesterol ( $r = -0.41$ ,  $p = 0.004$ ). In males such significant correlations were not found.

**Conclusions.** Cortisol can be considered as one of factors which regulate metabolic background of essential arterial hypertension. Its plasma concentration is dependent of gender and probably is associated with atherogenic dyslipidemia in hypertensive females.

**Kvasova P.A., Yena V.V.**

### **SOME FEATURES OF REHABILITATION FOR PATIENTS WITH CHRONICAL BRONCHIAL DISEASES IN COMBINATION OF CHEST DEFORMATION CAUSED BY SPINE DISORDERS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Clinical problem includes thorax deformation because of different disturbances of spine. It results in pathologic changing of chest volume and then lungs volumes in patients with chronical bronchial diseases (CBD).

**The aim** – determination of new approaches to breath restorative therapy for patients with CBD.

**Material and methods.** Rehabilitation programme included posture correction, breathing kinezotherapy, procedures of therapeutic physical exercises. Yoga-therapy, fitball gymnastics, sound exercises, relaxation exercises, water exercises, methods of massage. Rehabilitation course was carried out daily during 3.5 hours as the cycle of procedures.

**Results.** The ventilation disturbances in patients with combined pathology and chest deformation were more expressed than in patients without vertebral pathology. These differences were interpreted in dynamic indexes of respiration volumes. The worked out tactics of restorative methods improved clinical state of these patients. Physical exercises stimulate the respiration and lungs gas exchange eliminate discoordination of respiratory act, prevent development of chest deformation.

**Conclusion.** The restoration of respiratory functions depends on correction of deformed volumes of chest.



**Lahno. O.V., Bardinov D.V., Kirilovich E.I.**  
**STATE OF CARDIOVASCULAR AND LIPID METABOLISM IN PATIENTS WITH**  
**THYROID DISEASE**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Internal Medicine №2**

**Aim.** To examine the metabolic and hemodynamic characteristics of patients with different thyroid function.

**Materials and methods.** The research involved 30 patients with primary hypothyroidism of different etiology (mean age  $47,3 \pm 11,9$  years, mean disease duration was  $5,18 \pm 3,76$  years), 40 patients with diffuse toxic goiter (mean age  $47,31 \pm 10,74$  let, the average duration of the disease  $4,52 \pm 3,05$  years). Verification of the diagnosis was carried out on the basis of clinical, laboratory and instrumental investigations. At the time of the survey, patients were uncompensated: thyroid stimulating hormone ( TSH) in the blood of patients with thyrotoxicosis was  $<0,005$  mIU / L , free T4 ( St. T4 )  $5,35 \pm 2,71$  ng / dL in the blood of patients with hypothyroidism TSH was  $32,895 \pm 12,54$  mIU / L, St. T4  $0,91 \pm 0,23$  ng / dl. To assess the metabolic changes there was used biochemical analysis of blood lipid determination, hemodynamic parameters were assessed by ambulatory blood pressure monitoring ( ABPM ).The program Statistics 6.1 was used for processing the results.

**Results.** When estimating expected lipid hypercholesterolemia was detected in patients with hypothyroidism, but in the program - Statistics 6.1 the blood of these patients the level of cholesterol in high density lipoprotein ( HDL - cholesterol ) remained within the normal range. There were detected correlation of levels TRG and cholesterol of low density lipoproteins ( LDL - cholesterol ) ( $r = 0,606, p = 0,012$ ). In the blood of patients with thyrotoxicosis levels of lipid fractions were within target values, there was positive correlation between TSH and HDL cholesterol ( $r = 0,473, p = 0,030$ ). These figures reflect the probability of atherogenic changes during prolonged disease decompensation. There was noted the relationship between the levels of atherogenic lipoprotein fractions and the age of patients. So in the blood of patients with diffuse toxic goiter VLDL - cholesterol concentrations ( $r = 0,278, p = 0,024$ ), LDL-cholesterol ( $r = 0,738, p = 0,0003$ ) and patients with hypothyroidism, where the level holestrin - VLDL and triglycerides (  $r = 1,0, p = 0,014$ ) correlated with the age of the data groups. ABPM parameters in both groups were within the normal range as well. However, with equal systolic blood pressure in patients with thyrotoxicosis (average daytime SBP was  $123,7 \pm 12,66$  mm Hg. Art., Average SBP night  $120 \pm 16,51$  mmHg. Tbsp.)and hypothyroidism (mean SBP was  $126 \pm 29,14$  mm Hg. Art., average SBP night  $120,5 \pm 29,87$  mmHg. tbsp. ) were revealed differences in diastolic blood pressure ( in patients with diffuse toxic goiter average daytime DBP  $74,4 \pm 6,20$  mm Hg. Art., average DBP night  $69,4 \pm 7,86$  mm Hg. Art., in patients with hypothyroidism secondary DBP day  $84,5 \pm 6,08$  mm Hg. Art., average DBP night  $78,5 \pm 4,56$  mm Hg. tbsp. ). Lack of adequate pressure reducing at night creates the preconditions for the formation of subsequent hypertension ( thyrotoxicosis daily index (SBP 3% , CI 6.2% DBP ), hypothyroidism (SI 4.5 % SBP , DBP SI 6.8%). There was found negative correlation among patients with thyrotoxicosis between TSH levels and systolic blood pressure ( $r = -0,774, p = 0,014$  ), which confirmed a positive correlation and St. T4 level average pulse pressure ( $r = 0,796, p = 0,010$  ). These changes in the case of continuous decompensation may form a lesion of the cardiovascular system.



**Conclusions.** Using the model of uncompensated hyperthyroidism and hypothyroidism there were identified metabolic, hemodynamic changes that in the continuous course (overdose of thyroid hormones or inadequate compensation hypothyroidism) can lead to the formation of arterial hypertension.

**Mirza Ali Hameed, Zazdravnov A.A.**

**SOCIAL FACTORS CONTRIBUTING TO THE DEVELOPMENT OF IRON DEFICIENCY ANEMIA IN NONPREGNANT WOMEN IN AFGHANISTAN**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Introduction.** Iron deficiency anemia (IDA) is the most common nutritional deficiency in the world. Afghanistan is rated one of the poorest countries in the world and IDA has a high level of prevalence in the country. IDA is the extremely important risk factor for health and development of people, especially in women and children. According to World Health Organization, the global prevalence of anemia is 24.8%, which means about 1.62 billion people worldwide have anemia. It is noted that the highest prevalence is in preschool age children (47.4%), while the lowest prevalence is in adult males (12.7%). The greatest number of individuals affected by anemia belongs to non-pregnant women, 468.4 million. In Afghanistan prevalence of anemia among nonpregnant women is about 25%.

**Material and methods.** 44 female with IDA, living in rural area of the city of Herat were examined in prehospital conditions. The average age of the patients was  $35 \pm 3,2$  years. All patients were divided into two groups depending on the severity of the anemia. The first group consisted of 27 patients with mild anemia (level of haemoglobin (Hb) -  $101 \pm 2,7$  g/l), the second group consisted of 17 patients with moderate anemia (Hb -  $81 \pm 2,1$  g/l). All women were non-breastfeeding.

**Results.** The mean age of marriage in group 1 was  $17.4 \pm 3.13$  years, and 5 women (18.5%) of them were married under the age of 15. In group 2 the mean age of marriage was  $16.2 \pm 4.18$  years and 5 women (29.4%) of them were married under the age of 15. The mean age of first pregnancy was  $18.8 \pm 2.79$  years in group 1,  $17.9 \pm 2.01$  years in group 2. The mean number of children was  $2.7 \pm 0.37$  in group 1;  $4.6 \pm 0.81$  years in group 2. The differences in the number of children between the groups were statistically significant ( $t=2.055$ ,  $p=0,04$ ). Also revealed statistically significant differences ( $t=2.418$   $p=0,02$ ) in body mass index between the groups:  $18.23 \pm 0.553$  in group 1 and  $16,56 \pm 0.606$  in group 2. In poor countries, body mass index reflects the nutritional status of person.

**Conclusion.** Social factors affect the severity of iron deficiency anemia in nonpregnant women of Afghanistan. These factors include a large number of children and inadequate nutrition.

**Mishchuk V. G., Boychyk V. B..**

**COMPARISON OF DISTRIBUTION OF INTRAESOPHAGEAL PH AMONG PATIENTS WITH GASTROESOPHAGEAL REFLUX DISEASE WITH PREDOMINANCE OF NIGHTTIME REFLUXES.**

**Ivano-Frankivsk national medical university**

**Department of general practice (family medicine), physical rehabilitation and sports medicine)**

**Introduction.** Nighttime reflux occurs not in all patients with gastroesophageal reflux disease (GERD) and is associated with more aggressive ideas about this disease. Still it has



remained unknown if the difference in nighttime reflux between the different GERD groups is related to the distribution of intraesophageal pH level or duration of acid exposure. Recumbent reflux episodes mostly occur in the early part of the nighttime period.

**Aim:** To compare distribution of intraesophageal pH during nighttime between patients with erosive and non-erosive forms (NERD) of GERD.

**Material and methods:** Our study involved 44 patients with GERD, including 31 men (70.1%) and 14 (29.9%) women. All patients made endoscopic examination of the esophagus, stomach and duodenum by apparatus Olympus GIF-XPE and underwent 24 hour pH monitoring in the lower part of esophagus using portabledigital recorder ah-1RN-M. In this study were included patients with heartburn symptoms at least 3-5 times per week with a predominance of complaints at night. Patients were not receiving any antireflux treatment. Nighttime period was defined as the time from the moment patients entered the bed to fall asleep and until they woke up the next morning. Distribution of intraesophageal pH during nighttime was generated using a special computer program that analyzed all registered pH measurements.

**Results:** Eighteen patients were found to have non-erosive and 26 - erosive form of GERD. First group included 5 woman and 13 man (mean age  $38.7 \pm 1.3$ ), second group- 9 woman and 17 man (mean age  $47.3 \pm 0.9$ ). Time in bed was not different between 2 groups. In both groups patients with abnormal recumbent reflux, acid reflux was significantly more frequent in the first half of the recumbent period compared with the second half (6.3% vs. 1.3%,  $P < 0.001$ ). Symptom index for erosive form was 43.8% versus 21% for non-erosive form of GERD,  $P < 0.05$ . Duration of pH  $< 4$  during 24 hours in patients with NERD was  $7,8 \pm 0,9$  minutes, while the erosive form -  $11,6 \pm 0,9$  minutes ( $P < 0,05$ ). pH  $< 4$  in the vertical position was recorded in the patients of I group  $5,6 \pm 0,6$  min, while II group -  $6,7 \pm 0,7$  min. In the horizontal position, the levels of pH  $< 4$  in patients of group I were during  $5,3 \pm 0,4$  min, while II - during  $5,9 \pm 0,8$  min. Also noteworthy is the fact that with erosive form of GERD number of episodes when the pH in the lower third of the esophagus  $< 4$  over 5 min was recorded on average in  $2,2 \pm 0,3$  cases, while NERD only in  $1,2 \pm 0,3$  cases. Overall, the distribution of intraesophageal pH during nighttime was similar between erosive and non-erosive forms of GERD for all pH ranges.

**Conclusion:** Patients with erosive form demonstrated a significantly higher nighttime esophageal acid exposure as compared with non-erosive form of GERD, but the overall distribution of the acid exposure was similar between the 2 groups. This suggests that duration rather than intensity of nighttime intraesophageal acid exposure accounts for the difference between erosive and NERD. Nighttime reflux occurs primarily during the first half of the recumbent period.

**Mutaz Marwan Al-Ketan, Tytova G.**

### **RISK OF PULMONARY EMBOLISM IN PATIENTS WITH CARDIOVASCULAR DISEASES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine №2, clinical immunology and allergology.**

**Aim:** to investigate risk of pulmonary embolism (PE) in patients with cardiovascular diseases.

**Material and methods:** 58 patients with cardiovascular pathology were examined (37 female and 21 male). To estimate the risk of pulmonary embolism in patients with



cardiovascular diseases the pulmonary embolism clinical score system was used : Geneva scale and Wells scale. Patients were divided into 3 groups according to the classification of PE risk. The 1st group – low risk – 12 patients ( 5 men and 7 women,  $56,8 \pm 3,4$  years of age), among them 42% of pts with atherosclerotic cardiosclerosis, 25% with stable angina and 33% with nonQMI, the 2nd group- intermediate risk – 28 patients (10 men and 18 women,  $62,5 \pm 4,6$  yrs) : 53 % stable angina, 7% unstable angina, 10% non QMI, 20 % QMI, 10 % atherosclerotic cardiosclerosis; 3d group – high risk - 9 patients (4 men and 5 women,  $64,6 \pm 6,7$  yrs) 14% stable angina, 14% unstable angina, 14% QMI, 58% atherosclerotic cardiosclerosis.

**Results.** It was found that complications such as atrial fibrillation, extrasystolic arrhythmia, COPD, Chronic bronchitis, autoimmune thyroiditis, worsen the prognosis and increase the risk of PE in patients with cardiovascular diseases. High and intermediate risk was mostly seen in patients with nonQ and QMI, but it was found that the highest amount of patients with intermediate risk were among patients with stable angina and atherosclerotic cardiosclerosis, also patients with atherosclerotic cardiosclerosis showed a % of high risk of PE. This might confirm a propriate anticoagulant therapy in patients with unstable angina, nonQ and QMI, but insufficient anticoagulation in patients with stable angina and atherosclerotic cardiosclerosis.

**Conclusion:** All patients with cardiovascular diseases have a risk of developing pulmonary embolism no matter if they had any history of PE in anamnesis or no. Complications such as (atrial fibrillation, extrasystolic arrhythmia, COPD, Chronic bronchitis, autoimmune thyroiditis worsen the prognosis and increase the risk of PE in patients with cardiovascular diseases. More intensive anticoagulant/antiagregant therapy should be included into protocols of treatment of the patients with stable angina and atherosclerotic cardiosclerosis due to high risk of development PE in such patients.

**Mykhaylov V., Mykhailova I.**

### **PSYCHO-EMOTIONAL DISTURBANCES IN MYOCARDIAL INFARCTION PATIENTS.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** The majority of patients after myocardial infarction (MI) have various psycho-emotional and cognitive impairments. It complicates the course of disease, rehabilitation processes, reduce the quality of life for patients.

**The aim** of the present study was to estimate the emotional disorders in patients with MI.

**Material and methods:** The study was performed including 60 patients ( $56,8 \pm 9,8$  years old) with MI. Methods of examination were: clinical, psycho-diagnostic (the MMSE, memory test, Spylberger scale of the anxiety, Gamylyton scale of the depression, quality of life), statistical methods. The investigation was held at 3 stages: 1stage – 28 days after MI (acute period), 2 stage – after 3-6 month, 3 stage - after 12 month (recovery period).

**Results:** At patients with myocardial infarction in acute period the painful syndrome was the main one, leads to severe psycho-emotional disturbances. At the background of preservation of cognitive function phobic, anxiety and depressive symptoms were prevailed, the severity of which depends on the severity of pain. Subsequently, the primary psycho-



emotional component disappeared, anxiety-depressive disorders, hypo- and anozognostical type of perception of self condition were formed.

**Conclusions:** We developed system of psychotherapeutical correction of emotional disorders for myocardial infarction patients. This system includes personally - oriented, rational, and autogenic-training therapy.

**Narizhnaya A.**

**MONOCYTE CHEMO ATTRACTANT PROTEIN-1 IN PATIENTS WITH CHRONIC HEART FAILURE OF DIFFERENT FUNCTIONAL CLASS WITH TYPE 2 DIABETES.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine №2 and Clinical Immunology and Allergology**

**The aim** was to assess the dynamics of monocyte chemoattractant protein-1 in patients with chronic heart failure of different functional classes depending on the presence or absence of concomitant type 2 diabetes.

**Material and methods.** 95 patients with chronic heart failure II - III FC were examined due to coronary heart disease who were treated at the cardiological department of the Kharkiv City Clinical Hospital № 27 (mean age  $65,13 \pm 8,66$  years). The first group included 52 patients with chronic heart failure with type 2 diabetes, the second - 43 chronic heart failure patients without type 2 diabetes. Research was excluded patients with acute coronary syndrome, acute myocardial infarction. 65 patients of patients had II NYHA FC, 30 patients - III FC. Among the 1<sup>st</sup> group 31 patients had II NYHA FC, 12 - III FC. In 2<sup>nd</sup> groups of patients, 40 patients had II NYHA FC, 12 patients had FC III. Concentration of proinflammatory cytokine interleukin-1 $\beta$  and fibrosis factor monocyte chemoattractant protein-1 were determined by ELISA (enzyme-linked immunosorbent assay).

**Results.** In patients with chronic heart failure in presence or absence of type 2 diabetes increase in the profibrotic parameter monocyte chemoattractant protein-1 and proinflammatory cytokine interleukin-1 $\beta$  were increasing in parallel with NYHA FC increasing. Presence of type 2 diabetes negatively affects the work of cytokines and markers of fibrosis, as evidenced by higher levels of interleukin-1 $\beta$  and monocyte chemoattractant protein-1, compared with patients without diabetes in the presence of the same NYHA FC of chronic heart failure.

**Conclusion.** Monocyte chemo attractant protein-1 in patients with chronic heart failure of different functional class with type 2 diabetesis interesting and should be studied further.

**Ntim-Gyakari Afia, Shapkin V.E.**

**PERCULIARITIES OF TROPICAL DIABETES MELLITUS**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Introduction.** As new lifestyles, imported dietary practices, and globalization take roots in the developing world, as Africa is today, diabetes and its complications are considered an epidemic in Africa. Diabetes is a worldwide public health problem made more acute in Africa by low socio-economic standards. Studies on diabetes mellitus in tropical zones indicate that its traditional link with overnutrition depends not only on the economic level, but also on some ethnic, social and cultural factors. At present, we insist on the unexpected relationship between diabetes mellitus and undernutrition either in some



major infantile forms with calcareous pancreatitis, or some less severe forms observed in Africa. Malnutrition-related diabetes mellitus (medical condition) - a rare type of diabetes associated with long term malnutrition. This type of diabetes is characterized by insulinopenia, insulin resistance, hyperglycemia and failure of the beta-cells (insulin-producing cells in the pancreas). It is also known as tropical diabetes or tropical pancreatic diabetes mellitus. It seems more frequent in the chronic malnutrition areas. So, it is tempting to utilize diabetes mellitus as an indicator of nutritional disorder or of dietary toxic factors. However, we ought to consider it within a multifactor surroundings associating genetic determinism and the other factors of tropical aggressiveness.

**Material and methods.** 36 people (21 men and 15 women) with BMI <19 kg/m<sup>2</sup> were examined at the diabetic clinic at the Central Regional Hospital, Ghana. The average age of the patients was 47 years. USG, determination of ketonuria, HbA1C and insulin blood level was performed in all patients. Diagnosis was based on American Diabetes Association criteria.

**Results.** 18 (85.71%) men and 14 (93.3%) women had chronic pancreatitis. Based on the anamnesis 8 (38.1%) men and 5 (33.3%) women had ketosis during the last 5 years. All patients had diabetic microvascular complications (retinopathy and nephropathy). 14 (38.8%) men and 12 (33.3%) women had diabetic macroangiopathies. Level of HbA1C increased more than 6% at all patients. Insulin blood level decreased at all chronic pancreatitis patients. But their level of decrease was different – from 15% - to 41%.

**Conclusion.** According to our investigation, the tropical diabetes mellitus occurs in patients with normal weight. It is not very ketogenic. We see higher prevalence of microvascular complications (retinopathy and nephropathy) in comparison with macrovascular complications. Insulin insufficiency is not very big in cases of tropical DM.

**Ogneva E., Zhuravlyova A.**

## **THE USAGE OF NONINVASIVE DIAGNOSTIC TESTS IN PATIENTS WITH CHRONIC LIVER DISEASES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine №3**

**Introduction.** Liver is one of the most affected organs in diabetes. Diagnosis of diffuse chronic liver diseases, especially on the early stages of progression of histological changes is rather complicated problem. The «gold» standard for diagnosing of histological changes in the liver is liver biopsy. However, this procedure is invasive, has contraindications and this method is not accurate enough. It was the basis for the introduction of noninvasive diagnostics of liver fibrosis into the clinical practice. The main are liver ultrasound, computerized tomography, magnetic resonance imaging and elastometry. Particular attention is paid to the new noninvasive diagnostic tests FibroTest and FibroMax.

**Aim.** To assess the possibility of usage of noninvasive diagnostic tests FibroTest and FibroMax in patients with chronic liver diseases.

**Results.** Diagnostic tests FibroTest and FibroMax represent the expert system of conversion of the following biochemical blood parameters: alpha -2 macroglobulin, haptoglobin, apolipoprotein A1, gamma-glutamyl transpeptidase (GGT), total bilirubin, alanine aminotransferase (ALT), height (kg), weight (m) for FibroTest and alpha-2



macroglobulin, haptoglobin, apolipoprotein A1, GGT, total bilirubin, ALT, aspartataminotransferase (AST), blood glucose (fasting), triglycerides, total cholesterol, height (kg), weight (m) for FibroMax. FibroTest includes two calculation algorithms where FibroTest is for diagnostics of the liver fibrosis and AktiTest is for the assessment of necroinflammatory activity. FibroMax includes Fibrotest, AktiTest and also three diagnostic algorithms: SteatoTest is to determine the stage of steatosis, AshTest is to determine the degree of alcoholic steatohepatitis activity and NashTest is to determine the stage of non-alcoholic steatohepatitis (NASH) in patients with metabolic syndrome. As a result we got the indexes that correspond to a certain degree of histological activity, stage of steatosis, fibrosis and severity of NASH in accordance to the most commonly used morphological scales. In clinical work of our department we use all the methods of noninvasive diagnostics, but for dynamic control of liver condition and for evaluation of treatment effectiveness we prefer FibroTest and FibroMax tests. In controversial cases we use elastometry or biopsy.

**Conclusion.** Do these tests allow to replace liver biopsy? No, they don't. However, in those cases when biopsy cannot be performed or for the dynamic assessment of the treatment we can use the results of these tests.

**Olinyk M.O.**

**RELATIONSHIP BETWEEN TUMOR NECROSIS FACTOR- $\alpha$  AND CARBOHYDRATE METABOLISM IN PATIENTS WITH TYPE 2 DIABETES MELLITUS AND OSTEOARTHRITIS**

**Kharkiv national medical university, Kharkiv, Ukraine  
Department of Internal Medicine № 3**

**Introduction.** Tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ) takes part in regulation of carbohydrate metabolism, induces insulin resistance in adipose tissue and muscles, depresses genes that take part in process of assimilation and deposition of glucose and activates degenerative processes in the joint.

**The aim** of the present study was to investigate relationship between concentration in plasma tumor necrosis factor- $\alpha$  and parameters of carbohydrate metabolism in patients with type 2 diabetes mellitus (DM) in combination with osteoarthritis (OA) in patients with normal body weight and concomitant obesity.

**Materials and methods.** The study was performed on 65 patients (29 males, 36 females aged  $56.1 \pm 3,2$ ) with combination type 2 DM and OA in endocrinology and rheumatology departments of Regional Hospital of Kharkov. All patients were divided into 2 groups: group 1 ( $n = 30$ ) - with combined course of type 2 DM and OA with normal body weight, group 2 ( $n = 35$ ) - with combined course of type 2 DM and OA with obesity ( $BMI \geq 30$  kg/m<sup>2</sup>). The survey plan included: anthropometric data, indices of carbohydrate exchange (insulin, glucose, HbA1C, HOMA-IR). The level of HbA1C was  $<7.5\%$  in all patients. The level of TNF- $\alpha$  was determined by ELISA. All patients were made X-ray examination of knees.

**Results.** Significant correlation between TNF- $\alpha$  and insulin resistance was determined ( $r=0,35; p<0,05$ ) in 1<sup>st</sup> group with normal BMI. More significant correlation between TNF- $\alpha$  and glucose ( $r=0,43; p<0,05$ ), HbA1C ( $r=0,54; p<0,05$ ), insulin resistance ( $r=0,73; p<0,05$ ) and HOMA-IR ( $r=0,62; p<0,05$ ) was determined in 2<sup>nd</sup> group with comorbid pathology and



obesity . Also the degree X-ray changes (by Kellgren) were more in 2<sup>nd</sup> group in compare with the 1<sup>st</sup> group.

**Conclusion.** Significant correlation between TNF- $\alpha$  and glucose, HbA1, insulin resistance and HOMA-IR in group of patients with comorbid pathology and obesity means, that obesity is important factor of pathogenesis relationship immune and metabolic processes in patients with type 2 DM and OA.

**Oluvayemi Moses, Ashcheulova T.**

**THE EVOLUTION OF MEDICAL DIAGNOSTIC ULTRASOUND: ORIGIN  
AND TYPES OF ECHOCARDIOGRAPHY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Propedeutics to Internal Medicine Department N1, Basis of Bioethics and  
Biosafety**

**Introduction.** Unlike most medical diagnostic tests or procedures, diagnostic ultrasound exists in nature. Some mammals, such as bats and aquatic mammals, have the natural ability to visualize their environments sonically. The sonic imaging capability that these animals have is truly amazing. The evolution of medical diagnostic ultrasound, and echocardiography in particular, has been dramatic, and its ultimate capabilities are still unrealized. The origins of this technology date back to Curie and Curie, who first discovered piezoelectricity. A variety of subsequent discoveries were made that culminated in the first patent for ultrasonic, nondestructive flaw detection, issued to Sokolov in 1937. Firestone received a patent in 1942 for a somewhat similar device. Developments in this field accelerated quickly during World War II, when this application was used for naval sonar.

**Results.** After the end of World War II, numerous investigators sought peaceful uses for wartime technology. Sonar or diagnostic ultrasound was one of many such technologies. The early devices often used crude, two-dimensional scanning techniques. Wild was probably the first of the early investigators to examine the heart ultrasonically. This work was done primarily with autopsy specimens. It is interesting that one of his coworkers was Reid, who went on to make many important contributions to the field. Neither Wild nor Reid was a physician. The first physician who is credited with using ultrasound to examine the heart was Keidel. He attempted to use ultrasound as we commonly use x-ray. He directed the ultrasonic beam through the chest and obtained an acoustic shadow. He had some success and noticed that the acoustic shadow would vary with changes in cardiac volume. Keidel's attempts at transmission ultrasound never became popular. The first use of echocardiography as we know it today is usually credited to Edler and Hertz. Japanese investigators were also working with ultrasound at about the same time and may or may not have been aware of what was happening in Europe. Edler was a cardiologist practicing at Lund University in Sweden and was in charge of the cardiology department of the medical clinic. Hertz, who was a physicist, had a long-standing interest in using ultrasound for the measurement of distances. Hertz located a commercial ultrasonic reflectoscope used for nondestructive testing. The first person to be examined was himself. One of Edler's principal medical concerns in those days was mitral stenosis. Edler performed ultrasonic examinations on patients who were dying. He marked the location and direction of the ultrasonic beam. When the patient died, he stuck an ice pick into the chest in the direction of



the ultrasonic beam. At autopsy, he discovered that the beam transected the anterior leaflet of the mitral valve and not necessarily the back wall of the left atrium. Origin of 'Echocardiography. There are numerous interesting stories behind the evolution of echocardiography. Even the word "echocardiography" has a unique history. Edler called the technique ultrasound cardiography. His abbreviation for this examination was UCG. In the early days of diagnostic ultrasound, the only examination that had any general popularity was detecting an echo from the midline of the brain to see if it was deviated by an intracranial space-occupying mass. This examination was known as echoencephalography. If the ultrasonic examination of the brain was echoencephalography, then the examination of the heart should be echocardiography. The initial concern was that the natural abbreviation for echocardiography would be ECG. Obviously, this abbreviation was already being used for electrocardiography. We could not use the abbreviation "echo" because it did not differentiate between echocardiography and echoencephalography. The reason echocardiography was finally accepted as the name for this procedure was that echoencephalography disappeared. Now, the abbreviation (echo) is only used for echocardiography. None of the other diagnostic ultrasonic procedures uses the word or term echo.

**Omovole Oladipupo**

### **CLINICAL FEATURES OF EISENMENGER SYNDROME**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Eisenmenger syndrome is a cyanotic heart defect characterized by a long-standing intracardiac shunt that eventually reverses to a right-to-left shunt. This syndrome is less frequent today because of medical screening with echocardiography early in life. Eisenmenger's syndrome specifically refers to the combination of a cardiac shunt (systemic-to-pulmonary), significant enough to cause cyanosis and, over time, pulmonary hypertension. Eisenmenger's syndrome can cause serious complications in pregnancy, though successful delivery has been reported. Maternal mortality ranges from 30% to 60%, and may be attributed to syncope, thromboembolism, hypovolemia, hemoptysis or preeclampsia. Most deaths occur either during delivery or within the first weeks after.<sup>1</sup>

Pregnant women with Eisenmenger syndrome ["ES"] should be hospitalized after the 20th week of pregnancy - or earlier if clinical deterioration occurs. Symptoms related specifically to pulmonary hypertension result from the inability to increase pulmonary blood flow in response to physiologic stress. Other symptoms are caused by various multisystem complications associated with cyanotic congenital heart disease. Examination findings vary with the progression of the disease. Early in life, infants with a large systemic-to-pulmonary communication may demonstrate mild pulmonary overcirculation with symptoms of cor pulmonale. Initially, cyanosis is absent, and infants present with the signs and symptoms of heart failure. Physical examination may reveal tachypnea, nasal flaring, grunting, retractions, and tachycardia.

**Results.** Laboratory studies used in the diagnosis of Eisenmenger syndrome include complete blood count, biochemical profiles, and iron studies, in addition to blood gas assessments. Imaging studies can reveal cardiac structural defects and pulmonary changes, including irreversible alterations in the pulmonary system. Electrocardiography can also reveal signs of underlying cardiac defect and of right ventricular hypertrophy, while histologic findings can be used to determine the stage of pulmonary vascular pathology. If



the pulmonary artery pressures do not fall with inhalation of 100% oxygen or nitric oxide, the pulmonary hypertension is considered irreversible, and the patient is not a candidate for surgical repair. Pulmonary angiography can reveal structural alterations in the pulmonary vascular bed. Irreversible changes (consistent with Heath-Edwards III severity) can be visualized and may include loss of normal arborization, as well as tortuosity, narrowing, or cut-off of small pulmonary arteries. In the early stages, chest radiography reveals a typical appearance of increased pulmonary flow with right ventricular or biventricular enlargement, right atrial or biatrial enlargement, pulmonary vascular plethora, and an enlarged main pulmonary artery. Advancing pulmonary vascular disease appears as a normal cardiac silhouette with dilated main and branch pulmonary arteries without evidence of pulmonary overcirculation. In patients with severe pulmonary vascular disease, radiography reveals a normal-sized heart, pruning of the pulmonary vasculature, pulmonary infarction, and/or calcification of a patent ductus arteriosus. In severe pulmonary vascular disease, histologic analysis reveals abnormal extension of muscle into small peripheral arteries, severe medial smooth muscle hypertrophy of existing muscular arteries, plexiform lesions and increased intercellular material, and a reduction in the overall concentration and size of arteries.

**Omowole Oladipupo**

**LASSA FEVER SPREADS THROUGH NIGERIA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Since the beginning of 2012, the West African nation of Nigeria has been battling Lassa fever. The disease has reached 12 states and killed 40 people.

**Material and methods.** 397 suspected cases have been recorded in the states of Borno, Gombe, Yobe, Taraba, Plateau, Nasarawa, Ebonyi, Edo, Ondo, Rivers, Anambra and Lagos; however, only 87 of those cases have been confirmed.

**Results.** Last week, the Nigerian federal government created the Lassa Fever Rapid Response Committee, whose goal is to control and prevent the spread of the disease. Public health officials have also asked Nigerians to stop burning bushes as this drives rats out of the bush and into nearby houses. Lassa fever is a zoonotic virus, transmitted when a human comes into contact with an infected rat's feces, urine, or the bodily fluids of an infected human. The *Mastomys* rat carries the virus. These rats breed frequently and bear many offspring, increasing the potential for spread of the virus from rats to humans. Further, these rats are often found in human homes. Transmission through contaminated food is common, as the rats can leave excretions in food stores. While in some cases, the infection has no noticeable impact; it is, in other cases, fatal. The CDC estimates that in 20 percent of Lassa cases, patients suffer a "severe multisystem disease" and the case-fatality rate has reached as high as 50 percent. Symptoms show up anytime between one and three weeks after infection. According to the CDC, symptoms of Lassa are varied and include fever, abdominal pain, vomiting, diarrhea, facial swelling, protein in the urine, encephalitis, and mucosal bleeding. Lassa fever is treated with an antiviral drug called Ribavirin. In addition, doctors caring for Lassa fever patients should monitor fluid, electrolyte and oxygen levels. The virus was discovered in 1969, when two nurses in the Nigerian town of Lassa died of a mysterious hemorrhagic fever. The virus is endemic to many parts of West Africa including Nigeria, Sierra Leone, Guinea and Liberia.



**Onashko Yu., Tolstova T.**

## **THE ROLE OF ADIPOKINES IN THE DYSLIPIDEMIA PATHOGENIC MECHANISM**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Introduction.** At the present stage the attention of scientists is focused on dyslipidemia etiology. Adipokines which are hormones synthesized by adipose tissue play a significant role in the pathogenesis chain of carbohydrate and lipid metabolism, development of cardiovascular diseases, insulin resistance and obesity.

**Aim.** We investigated the metabolic effect of the most extensively studied adipokines.

**Results.** Leptin is a neurohormonal transmitter, the obesity gene product. The production of this hormone reflects total energy recourses of the organism and increases with the fat mass. Decrease in the blood hormone causes hunger and slows the flow of metabolic processes. Adiponectin is a hormone that reduces the level of fatty acids, activates their oxidation in muscle tissues and liver, prevents the accumulation of lipids at the cellular level, and improves the insulin sensitivity of peripheral tissues. Resistin is active at the adipogenesis stage. Metabolic effect of resistin manifests itself as increased sensitivity to insulin in hepatocytes and reduced sensitivity to insulin in peripheral tissues. As a result, insulin resistance is developed and glucose tolerance is reduced. ASP (Acylation stimulating protein) is synthesized in adipose tissue by converting the complement components (C3 and B factors and adipsin). ASP facilitates adipocytes glucose uptake, synthesis, their triglycerides accumulation. ASP deficiency slows the postprandial clearance of very low density lipoproteins and fatty acids, and increases the basal and stimulated insulin secretion. Therefore, the adipose tissue is the main source of energy and plays an important role in the energy homeostasis regulation. Adipokines are synthesized by adipose tissue, have diverse biological effects and influence the intensity of the processes in many organs directly or through neuroendocrine mechanisms interacting with the pituitary hormones, insulin, catecholamines.

**Conclusion.** In case of adipose tissue excessive accumulation there occurs a change in the adipokines profile which inevitably violates the flow of metabolic processes in various organs and tissues.

**Otchyk A.E.**

## **ELECTROLYTE AND CATECHOLAMINE METABOLISM IN PATIENTS WITH ASTHMA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine Propaedeutics No 2**

**Supervisor: Khimich T.Yu.**

**Introduction.** Currently, the rapid increase in the incidence of bronchial asthma has been observed in the world. Its prevalence in the world is up to 10%. One group of medications used to treat it includes derivatives of glucocorticosteroids.

**Aim.** Derivatives of glucocorticosteroids are most commonly used for the treatment of asthma. The effect of these medications on the sympathoadrenal system and mineral metabolism is poorly understood, so the purpose of our study is to analyze the content of some biogenous elements and catecholamines in the blood serum of patients with bronchial asthma undergoing the treatment with glucocorticosteroid medications.



**Material and methods.** We examined 11 patients, whose average age was 53 years old and who were hospitalized for in-patient treatment into the Department of Allergy in the Regional Clinical Hospital of Kharkov. All patients were female. Diagnosis: bronchial asthma of III degree, moderate, persistent, partially controlled pulmonary insufficiency of I-II degree. Duration of asthma is 15 years ( $15 \pm 2$ ) on average. All patients take Seretide in a dosage of 250 micrograms of Fliksotid and 25 micrograms of Serevent for 1-2 breaths a day for 5 years on average. At the time of examination the patients had symptoms of obstructive syndrome: asthma attacks 5-7 times a day, wheezing, shortness of breath. For respiratory function the forced expiratory volume  $FEV_1$  is reduced up to  $58\% \pm 4,2$  l and forced vital capacity FVC up to  $78\% \pm 2,1$  l.

**Results.** The potassium concentration in 80% of the patients is above the standard level ( $6.78 \pm 0.3$  mmol/L vs. 3.5 - 5.1 mmol/L in the norm). The calcium content is significantly reduced in 100% of the cases ( $1.88 \pm 0.17$  mmol/L vs. 2.15 – 2.55 mmol/L in the norm). 55% of the cases showed a reduction in the zinc concentration ( $6.33 \pm 0.37$  mmol/L vs. 7 – 23 mmol/L in the norm). Adrenaline content is significantly higher than normal ( $2.36 \pm 0.16$  nM/L vs.  $1.59 \pm 0.11$  nM/L in healthy individuals). Noradrenaline concentration is significantly decreased ( $26.21 \pm 1.28$  nM/L vs.  $32.45 \pm 2.41$  nM/L).

**Conclusions:** 1. The treatment with glucocorticosteroid medications affects the electrolyte metabolism resulting in complications. 2. Synthesis of adrenaline is activated during the disease recurrence resulting in decrease in the concentration of its metabolic precursor, i.e. noradrenaline.

**Petyunin P., Zolotaikina V.**

### **CYTOKINE'S LEVELS IN PATIENTS WITH ACUTE HEART FAILURE**

**Kharkiv National Medical University, City Clinical hospital #27.**

**Introduction:** The pathogenetic role of proinflammatory cytokines in chronic heart failure has been proved at numerous investigations. The propose of the study was to investigate of possible influence of tumor necrosis factor-alpha (TNF- $\alpha$ ) and interleukin-6 (IL-6) in acute heart failure, its correlation with cardiohaemodynamic parameters.

**Material and methods:** It was investigated 3 clinical groups of patient with ischemic heart disease and acute heart failure: 25 patients with decompensated chronic heart failure (DCHF), 19 patients with hypertensive heart failure (HHF) and 20 patients with pulmonary edema (PE). Control group was 15 patients with ischemic heart disease with heart failure I (NYHA). Mean age was  $64.8 \pm 4.2$  years, males–39%, females–61%. Circulating levels of TNF, IL-6 were measured at once patients have admitted to hospital. All data are presented as mean  $\pm$  SEM.

**Results:** Rate of TNF- $\alpha$  was 2.49-fold higher than control in DCHF group ( $126.99 \pm 23.17$  pcg/ml vs  $51.2 \pm 6.8$  pcg/ml,  $p < 0.001$ ); 2.56-fold higher than control in HHF group ( $131.55 \pm 28.6$  pcg/ml vs  $51.2 \pm 6.8$  pcg/ml,  $p < 0.001$ ); 3.47-fold higher than control in PE group ( $177.8 \pm 35.77$  pcg/ml vs  $51.2 \pm 6.8$  pcg/ml,  $p < 0.001$ ). It was found negative correlation of TNF- $\alpha$  with ejection fraction (EF) ( $r = - 0.88$ ,  $p < 0.001$ ), patients with EF  $< 40\%$  have rate of TNF- $\alpha$  3.25-fold higher than control and patients with EF  $> 40\%$  have rate of TNF- $\alpha$  2.9-fold higher than control. Rate of IL-6 was 2.32-fold higher than control in DCHF group ( $117 \pm 21.1$  pcg/ml vs  $50.4 \pm 7.1$  pcg/ml,  $p < 0.001$ ); 2.28-fold higher than control in HHF group ( $115.86 \pm 24.3$  pcg/ml vs  $50.4 \pm 7.1$  pcg/ml,  $p < 0.001$ ); 3.09-fold higher than



control in PE group ( $156 \pm 18.4$  pcg/ml vs  $50.4 \pm 7.1$  pcg/ml,  $p < 0.001$ ). Negative correlation of IL-6 with ejection fraction (EF) ( $r = -0.82$ ,  $p < 0.001$ ) was also revealed, patients with EF  $< 40\%$  have rate of IL-6 2.68-fold higher than control and patients with EF  $> 40\%$  have rate of IL-6 2.28 fold higher than control.

**Conclusions:** Recent investigation demonstrates increasing of levels of proinflammatory cytokines in patients with acute heart failure. Proportional relations between increased levels of TNF- $\alpha$  and IL-6 in plasma and decreasing of contractile ability of a myocardium confirms possible pathogenetic role them in acute heart failure. The further researches are necessary for the decision of a question of correction methods of inflammatory activation at acute heart failure.

**Polyakov A., Vvedenska A., Arkhipkina O.**

**EVALUATING OF THE CARDIAC RISK IN PATIENT WITH CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND ARTERIAL HYPERTENSION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal and occupational diseases**

**Introduction.** Chronic obstructive pulmonary disease (COPD) represents an important public health problem and is a major cause of chronic morbidity and mortality throughout the world. COPD often coexist with other diseases that may have a significant impact on prognosis. Arterial hypertension (AH) is a major comorbidity in COPD. It's now well known that cardiovascular diseases are associated with a high level of C-reactive protein (CRP). Although CRP is well studied, the role of this protein in pathogenesis of combined course of COPD and AH remains unclear.

**The aim** of our study was to evaluate the content of C-reactive protein in patients with COPD and COPD, combined with AH.

**Material and methods.** A total of 52 COPD patients (GOLD I and II) in remission were included. The main group included 29 patients with COPD and AH. 26 patients with isolated course of COPD formed the comparison group. The average age of examined patients was  $53,6 \pm 0,84$  years. Peripheral blood were analyzed for the expression of CRP by using the latex diagnosticum with CRP latex reagent (CRP Direct Latex VEDALAB). According to the Framingham Study, the following guidelines are recommended for the assessment of cardiovascular risk in regards to CRP levels: low risk for cardiovascular disease if CRP is 1 milligram (mg) per liter or less; moderate risk for cardiovascular disease if CRP is between 1 and 3 mg per liter; high risk for cardiovascular disease if CRP greater than 3 mg per liter. Statistical analysis of the results was performed with software Statistica 8.0 for Windows.

**Results.** In evaluating cardiac risk in patient with COPD the increase of CRP concentration in the examined persons was found. Measuring C-reactive protein values was showed a low-risk range ( $< 1$  mg/L) in 17.4% of patient with isolative course of COPD and 6.9% of patient with COPD and AH. C-reactive protein levels of 1-3 mg/L of blood, which indicates a moderate risk of heart disease, were revealed in 60.9% patient of the comparison group and 48.3% patient of the main group. 21.7% patient with COPD and 44.8% patient with COPD coexists with AH had CRP levels above 3 mg/L, that allows to consider a presence of high cardiovascular risk.

**Conclusions.** Our data showed, that COPD patients are at an increased risk for cardiovascular events. We found a prevalence of persons with moderate or high levels of



CRP in both groups. The level of CRP was more expressed in patients with co-existed arterial hypertension.

**Popova T.O.**

**BIOFEEDBACK IN PHYSICAL REHABILITATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Physical Rehabilitation and Sports Medicine. Kharkiv. Ukraine.**

**Scientific supervisor – E.V. Lutsenko**

**Introduction.** Biofeedback (BFB) is a technology composed of a complex of explorative, non-medicinal, physiological, prophylactic and curative procedures with the help of which it is possible to receive information about the condition or change of physiological processes of the organism by means of using an external termination of the feedback, as well as learning of their supraliminal control. Actuality of the given topic for medicine is concluded in the possibility of a wide application of BFB in its various spheres, including neurology, cardiology, gastroenterology, urology, pediatrics, geriatrics, physical rehabilitative and preventive medicine.

**Aim** of the research is conduction of an estimation of the present-day arrangements with BFB on the basis of the literature data.

**Material and methods.** Equipment of the biofeedback is based on measuring: of inyotonia (electromyogram, EMG); of the skin temperature; of the galvanic skin resistance (skin-galvanic reaction, SGR (KГP)); of the brain electrobiological activity (electroencephalogram, EEG); of the cardiac rhythm variability (electrocardiogram, ECG). For the sake of physical rehabilitation of the patients with the locomotor apparatus pathology, they use equipment on the EMG basis: complex 'Remiokor' ('AmbliokorTM-01D') of the SPC (HIIIQ – Scientific and Production Centre) 'In Vitro'; a hardware-and-software 'supporting-motor' complex of 'Biosviaz' CJSC; apparatus 'Nexus-10 Mark II' of the company of 'Mindmedia'. Some other parameters are also measured, depending on the potential of the apparatus and tasks of physical rehabilitation.

**Results.** Indications for application: infantile cerebral paralysis, pareses, ataxies, orthopedic diseases, as well as pathology induced by traumas of the peripheral nervous system and cerebro-cranial traumas. Also, with the help of these arrangements it is possible to train the patients on self-correction of their emotional status. Programmatically EMG is transformed into visual images and acoustical signals which facilitate reception of the results and their correction by a patient. The tasks of these arrangements are as follows: diagnostics and increase of a retractive muscle capacity; diagnostics and reduction of the muscle hyperactivity; diagnostics and normalization of the muscle reciprocity, correction of the pathologic synergism and synkinesis. Advantages of BFB-arrangements: a high effectiveness and speed of physical rehabilitation of the patients, learning the skills of self-regulation, density, convenience of using, accuracy, individual approach, a high level of focusing, due to the use of interactive elements, assistance, in case of ineffectiveness of the drug therapy, as well as a possibility to reduce the number of the medicine taking. Also, these arrangements enable to protocol observations keeping the results of every session and with the subsequent analysis of the dynamics of the physical rehabilitation process. Disadvantages: an insufficient exploration maturity of the method, a limited usage for an expert estimation of the patient's condition, taking to the consideration an opportunity of



simulation, existence of contraindications (photosensitive epilepsy, phrenoplegia, mental debility, mental retardation).

**Conclusions.** In conclusion, we can say that BFB-technology possesses an abundance of advantages and indications for application in various branches of medicine, including even physical rehabilitation, but, in spite of this, there is a number of this method limitations and even several contraindications.

**Ryndina N.**

**CORRELATION STRUCTURES IN ANEMIC PATIENTS WITH CHRONIC HEART FAILURE DEPENDING ON THE PRESENCE OR ABSENCE OF CHRONIC KIDNEY DISEASE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal diseases №2, clinical immunology and allergology**

**Introduction.** Anaemia and renal dysfunction are the most frequent companions of chronic heart failure. Comorbidity of chronic kidney disease, chronic heart failure and anemia provided an opportunity to combine them into cardiorenal continuum. The etiology of anemia of chronic heart failure and chronic kidney disease is multifactorial and includes iron metabolic disturbances of functional and/or absolute character.

**Aim** - evaluation of correlation structures involving iron metabolism parameters and erythropoietin in anemic patients with chronic heart failure, depending on the presence or absence of chronic kidney disease.

**Material and methods:** The study involved 188 anemic patients with chronic heart failure II-IV functional class due to ischemic heart disease. First group includes 100 patients with concomitant chronic kidney disease stage II–III, second group – without concomitant chronic kidney disease. Concentration of hepcidin, soluble transferrin receptor, ferritin, transferrin was determined by enzyme immunoassay.

**Results.** Data of system analysis shows that under the influence of chronic kidney disease in patients with anemia and chronic heart failure compared with anemic patients with chronic heart failure without chronic kidney disease, formed fundamentally different (on 64.8%) determinant of iron metabolism disorders according to correlation architectonics, which has completely decompensated character. Thus the backbone of functional metabolism of Fe in anemic patients with chronic heart failure without chronic kidney disease is reduced the transferring saturation, and in patients with chronic heart failure and chronic kidney disease - increased hepcidin activity.

**Conclusion:** In patients with anemia on background of chronic heart failure and chronic kidney disease set higher than in patients without chronic kidney disease, distress relation between parameters of Fe metabolism. This high rigidity of pathogenic determinants in patients with chronic kidney disease creates favorable conditions for long-term existence and difficulties for its therapeutic neutralization.

**Sachdeva Kamal, Kalmykov O.**

**CLINICAL ISSUES OF OCCUPATIONAL CHRONIC BRONCHITIS AND CHRONIC OBSTRUCTIVE PULMONARY DISEASE IN WORKERS FROM MACHINE-BUILDING INDUSTRY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal and Occupational Diseases**

**Introduction.** One of actual practical and scientific problems in pulmonology and



occupational medicine is often development of occupational bronchitis and its rapid transformation into chronic obstructive pulmonary disease (COPD).

**Aim** of the investigation was to reveal peculiarities of clinical course of occupational bronchitis and occupational COPD in workers from machine-building industry.

**Material and methods:** 102 males (25 men with OB, 28 persons with COPD of 1<sup>st</sup> stage, 49 patients with COPD of 2<sup>nd</sup> stage) were examined. Control group included 15 healthy volunteers. Mean age accounted  $52.3 \pm 4.71$  years, mean work experience –  $20.7 \pm 2.05$  years. Anamnestic data (time of course of the disease, quantity of exacerbations per year), intensity of complaints (cough, dyspnoe) according to scale metrics, physical tolerance (in 6-minutes walk test), respiratory function were evaluated.

**Results.** It was revealed that among a variety of respiratory symptoms the bronchitic syndrome leads, than, during the progress of the disease, – emphysema of lungs and pulmonary fibrosis and at last lung insufficiency develop. Cough, as an essential component of bronchitic syndrome, is mostly dry. Much more rare ( $p < 0,01$ ) appearance of productive cough is associated with development of respiratory infection or influence of other exogenous agents. The peculiarity of ventilatory disturbances in patients with occupational pathology is predominance of obstructive changes mostly in small bronchi already at early stages of COPD, together with low reversibility. Clinical and functional peculiarities of dust pathology in workers of separate occupations are conditioned by differences in the nature of influencing industrial aerosol.

**Conclusion.** Time of course, quantity of exacerbations per year, time exposition to dust influence may serve as clinical criteria and predictors of progression of the dust pathology. Intensity of dyspnea, forced expiratory volume for 1<sup>st</sup> second value and distance of 6-minutes walk test is recommended for use to evaluate a functional state of respiratory system in patients with dust pathology. Further perspectives include evaluation of clinical peculiarities of these diseases in certain occupational groups of workers, according to presence of accompanying pathology, and interrelation analysis of clinical signs and pathogenetic factors of development and progression of dust respiratory pathology.

**Serebryanik A.Yu., Bayramov A.N., Lakhno O.V.,  
FEATURES OF RISK FACTORS FOR CARDIOVASCULAR DISEASES IN  
MEN WITH NON-ALCOHOLIC FATTY LIVER DISEASE (NAFLD)**

**Kharkiv national medical university, Kharkiv, Ukraine  
Department of Internal Medicine №3**

**The aim:** to research the characteristics of risk factors for cardiovascular diseases (CVD) in men with non-alcoholic fatty liver disease (NAFLD).

**Materials and methods:** The research included 45 men with overweight and obesity between the ages from 20 to 60 years old. All patients were divided into two groups according to age: the first group – patients with NAFLD (29 men, middle age –  $49.1 \pm 1.51$  years old), the second group – patients without NAFLD (16 people, middle age –  $48.8 \pm 1.98$  years old). Assessed body mass index (BMI), office blood pressure (BP), total cholesterol (TC) and its fractions, fasting blood glucose, ultrasound examination of the liver sizes, total coronary risk score on a scale of SCORE.

**Results:** There were 79.3% of patients with steatosis and steatohepatitis 20.7% diagnosis in the group with NAFLD. The middle BMI in the first group was  $31.72 \pm 0.81$



kg/m<sup>2</sup>, in the second – 29.62±1.04 kg/m<sup>2</sup>. Obesity of the I-II level occurred in 48.3% and 37.6% in the first and second groups, obesity of the III level occurred in 6.9% of men of the first group of patients, and there was no obesity among patients of the second group. Irregular meals were in 79.3% and 56.3% of all cases, decreased physical activity in 44.8% and 12.5% of patients in the first and second groups. Hypertension was diagnosed in 93.1% and 93.8% of men in the first and second groups. Average value of SAP in patients from the first group was 139.5±2.87 mm Hg, which is 7 mm Hg more than in the second group. Carbohydrate metabolism disorders in patients with NAFLD were in 72.4% of all cases, patients who didn't have this disease – 50.0%. Among them, diabetes and impaired glucose tolerance (IGT) in both groups were in 41.3% and 12.6% of subjects. Prevalence of disorders of lipid metabolism in both groups did not differ significantly and was at a high level – 82.8% in the first and 81.3% in the second group. Patients with NAFLD in 1.5 times more often than the experimental group of patients observed hypertriglyceridemia – 65.5%. Average value of total coronary risk by SCORE scale was 3.90±0.44 and 3.09±0.68 in the first and second group.

**Conclusion:** Men with non-alcoholic fatty liver disease and increased BMI, in comparison with patients who have overweight only, have more tendencies for occurrence of a number of risk factors: malnutrition, physical inactivity, carbohydrate (including diabetes mellitus) and lipid metabolism disorders that implemented large total coronary risk by SCORE.

**Shalimova A.S.**

**ROLE OF TYPE 2 DIABETES IN THE DEVELOPMENT OF REMODELING OF HEART AND VESSELS IN PATIENTS WITH ESSENTIAL HYPERTENSION**  
**Kharkiv Medical Academy of Postgraduate Education**

**Introduction.** The combination of essential hypertension and type 2 diabetes is the most aggressive in the context of cardiovascular morbidity and mortality. Metabolic determinants of type 2 diabetes potentially run a pathophysiological cascade leading to endothelial dysfunction, cardiac remodeling and vascular immunoinflammatory activation and apoptotic processes.

**Material and methods.** We have carried out a study which aimed to assess the contribution to the development of type 2 diabetes cardiac and vascular remodeling in patients with essential hypertension. 180 patients were examined: 107 patients with essential hypertension in combination with type 2 diabetes and 73 patients with essential hypertension without type 2 diabetes.

**Results** of the research showed that patients with essential hypertension and type 2 diabetes are characterized by preserved systolic function of the left ventricle and more pronounced compared to patients without type 2 diabetes predominance of concentric (67,3%) and eccentric (17,8%) hypertrophy of left ventricle which is the worst case remodeling. In patients with essential hypertension and in combination with type 2 diabetes degree of left ventricle diastolic dysfunction more pronounced than in nondiabetic patients. In the presence of 100% of patients with essential hypertension without type 2 diabetes diastolic dysfunction type violations left ventricle relaxation, in 13,1% of patients diagnosed with type 2 diabetes heavier pseudonormal type of left ventricle diastolic dysfunction. Changes in the vascular wall in patients with essential hypertension with and without type 2 diabetes increase pulse wave velocity and intima media thickness in the carotid arteries and abdominal aorta, lower power endothelium-dependent vasodilation.



**Conclusion.** The distinctive feature of the group of patients with a combination of essential hypertension and type 2 diabetes compared with a group of patients with essential hypertension without type 2 diabetes were significantly larger values of intima media thickness, pulse wave velocity in the carotid arteries, pulse wave velocity in the abdominal aorta and a significantly lower value of endothelium-dependent vasodilation.

**Shekhovtsova Y.A.**

**CHANGES OF LIPID PROFILE IN PATIENTS WITH CHRONIC  
PANCREATITIS AND DIABETUS MELLITUS TYPE 2**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine №3**

**Introduction.** In modern science, metabolic infringements that occur primarily in patients with metabolic syndrome, which consist, first of all, of dyslipidemia and type 2 diabetes mellitus (DM2) play an important role in the development of chronic pancreatitis (CP).

**The aim** of the present study was to investigate changes of lipid profile in patients with combined course of CP and DM2.

**Materials and methods.** The study was performed on 63 patients (32 males, 31 females aged  $52.1 \pm 2,8$ ): group 1 (n = 20) - with combined course of CP and DM2, group 2 (n = 21) - with CP, group 3 (n = 22) - with DM2. The survey plan included: anthropometric data, indices of carbohydrate exchange (insulin, glucose, HbA1C, HOMA-IR), lipid metabolism (total cholesterol, triglycerides (TG), low-density lipoprotein (LDL), high-density lipoprotein (HDL)). The level of HbA1C was  $<7.5\%$  in all patients.

**Results.** Body mass index (BMI) was higher in groups 1 and 3 than in group 2 ( $33.2 \pm 3.7$  vs  $25.8 \pm 4.2$  kg/m<sup>2</sup>,  $p < 0.05$ ). Dyslipidemia were significantly more frequent in group 1 than in groups 2 and 3 (67.4 % vs 44.2% and 52.3 % respectively,  $p < 0.05$ ). Hypertriglyceridemia was detected more frequently in patients group 1 compared with patients groups 2 and 3 (76.3 % vs 38.4% and 52.8 % respectively,  $p < 0.05$ ). The levels of total cholesterol, TG and LDL in patients group 1 were higher than in groups 2 and 3 (on average 29 % and 18 %; 19% and 17 %; 34% and 26 % respectively,  $p < 0.05$ ). The level of HDL was lower in patients group 1, than groups 2 and 3 (on average 19% and 15 % respectively,  $p < 0.05$ ). The level of total cholesterol in all groups was increased proportion to BMI ( $r = 0.39$ ;  $p < 0.05$ ). The ratio of TG/HDL in group 1 was higher than in group 2 and 3 (on average 38% and 22% respectively,  $p < 0.05$ ). The levels of LDL were correlated with total cholesterol levels ( $r = 0.67$ ;  $p < 0.001$ ), with BMI ( $r = 0.38$ ;  $p < 0.001$ ), with HOMA-IR ( $r = 0.18$ ;  $p < 0.001$ ).

**Conclusions.** Patients with combined course of CP with DM2 have a highest rate of atherosclerotic vascular lesions.

**Shelest B.A., Kovaleva Jul.A.**

**CYTOKINE PROFILE DURING THE EXACERBATION OF CHRONIC  
GASTRODUODENITIS**

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**Department of internal medicine and occupational disease,**

**Department of internal medicine №2, clinical immunology and allergology**

**Introduction:** The elevated levels of proinflammatory cytokines that accompanying many diseases of the gastrointestinal tract, including special forms of gastroduodenitis, is



considered as evidence of the important role of inflammation in the pathogenesis of gastroduodenal mucosal lesions.

**Aim** of this study was to compare the pool of circulating cytokines in healthy people and patients with acute exacerbation of chronic gastroduodenitis.

**Material and methods:** 26 patients aged 21-35 years were enrolled. They were admitted into hospital with acute exacerbation of chronic gastroduodenitis. The investigation was conducted at the beginning of inpatient treatment and after 3 weeks. The clinical blood test, fibrogastroduodenoscopy, conditions of gastroduodenal mucosa, cytokine levels were performed. The obtained results were calculated with using of the Student's t test.

**Results.** Width of "normal" range can be connected with the peculiarities of the patients, the conditions of the disease, the method of determining cytokines and other. We noted the increasing of IL-1 $\beta$  to  $18,87 \pm 2,36$  pg / ml and IL-2 to  $17,39 \pm 2,49$  pg / ml (  $p < 0.05$  in both cases relative to the control group -  $4,81 \pm 0,77$  pg / ml and  $4,28 \pm 1,01$  pg / ml ) in patients during an initial examination. The content of the pool of anti-inflammatory cytokine IL-10 cytokine ( $15,41 \pm 3,11$  pg / ml) were increased in comparison with the control group ( $5,69 \pm 1,55$  pg / ml ). High levels of IL-1 $\beta$  and IL-2 can be considered as an indication of an indefinite inflammatory focus, which could not be confirmed by endoscopic and clinical manifestations. Aggravation is the second (subsequent) stage of the pathological process in the gastric mucosa, when the worsening of secretory activity is possible by reducing the morphogenetic (reparative) function of the immune system. At the same time there is a redistribution of blood cytokines and their total content significantly increased per unit volume of blood.

**Conclusions.** The blood levels of proinflammatory cytokines IL-1 $\beta$  and IL-2 and anti-inflammatory cytokine IL-10 were significantly increased during exacerbation of chronic gastroduodenitis. The content of the proinflammatory cytokine was increased more than antiinflammatory one's.

**Singh H., Josan G.S., Mithlesh K., Kalmykov O.O.**

### **DIAGNOSTIC CRITERIA FOR OCCUPATIONAL ORIGIN OF CANCER**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal and Occupational Diseases**

**Introduction.** The problem of occupational origin of tumor is one of most complicated in occupational medicine. For the other hand, carcinogenic risk is almost impossible to associate with any sole occupational agent. In real practice diagnosis concerns combined influence of different agents, moreover mode of life. In some occupations the carcinogenic agent is well-known, in others there is no such clarity and level of carcinogenic danger is evaluated. Moreover, due to continuous changes of technological processes one agents disappear, others arise.

**Results.** The most problematic in diagnosis is fact of prolonged period between exposition of carcinogenic agent and manifestation of a tumor. In such circumstances evaluation of sanitary-hygienic conditions at work place is carried-out retrospectively and there might be no information available. Development on background of disease caused by same occupational agent is notable for occupational tumor (i.e., development of mesothelioma or adenocarcinoma in patient with asbestosis). Following absolute diagnostic criteria for occupational tumor are developed: - proved influence of 1<sup>st</sup> group carcinogenic



agents according to data of International Agency for Research on Cancer (IARC); - working experience in contact with carcinogenic agents for not less than 10 years (except ionizing radiation); - level of carcinogenic agents on working place exceeding maximum permissible values (except ionizing radiation); - localization of tumor in specific for this carcinogenic agent target organs (according to IARC)

**Conclusion.** In conclusion, it should be stated that usually occupational tumors don't have any specific clinical, morphological or functional peculiarities. Only professional biodata, information about working conditions make it possible to associate tumors of different locations with occupational origin.

**Suhonos N.K, Tsodikova N.**

**COMPARATIVE ANALYSIS OF CORRELATIONS BETWEEN METABOLIC INDICES IN PATIENTS WITH VIBRATIONAL DISEASE IN COMBINATION WITH HYPERTENSION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal and Occupational diseases**

**Introduction.** The estimation of the immune and neuro-endocrine systems tension dynamics in patients with vibrational disease (VD) in combination with hypertension (H) by a method of the correlation adaptometry is the aim of this investigation. With increasing load adaptation in populations or groups level correlations between physiological parameters increases, and as a result of successful adaptation is reduced. The title of this effect ("effect of group stress") and the Group is reflected nonspecific nature of this reaction. Mathematical models to explain these phenomena at the conceptual level have been proposed in the paper. Physiological parameters may themselves be varied within wide limits, and the effect of the adaptive system clearly observed on the relationships between them. Based on this approach to the study of adaptation and its practical application called correlation adaptometry.

**Materials and methods.** Method correlation adaptometry, based on the analysis of correlations between physiological parameters, allows to evaluate the impact of unfavorable factors on population groups and different physiological systems. There were  $n = 107$  patients with different stages (I, II) of VD in combination with (H) ( $n = 60$ ) and without it ( $n = 47$ ). Among these patients it was choosed 4 groups: I gr.,  $n = 21$  – VD-I; II gr.,  $n = 26$  – VD-II; III gr.,  $n = 26$  – VD-I  $\pm$  H; IV gr.,  $n = 34$  – VD-II  $\pm$  H. Control group had 22 apparently healthy men. In the work we used 27 physiological indices of the patients metabolic state (immune, neuro-endocrine systems). It was carried out analysis of the twin correlation of indices by Spirman with help of program SPSS v. 13.

**Results.** It was determined the presence of the "group stress effect" in the patients with VD in comparison with control: increasable number of the reliable correlative connections testifies about significant tension in immune, neuro-endocrine systems and metabolic indices in VD patients. We can talk about the obvious stress neuroendocrine regulation, particularly evident in group IV patients. The most informative parameter for evaluating the severity of pathological processes in the body is the correlation of the parameters of immune and neuroendocrine systems and the status of their metabolic activity. The obtained levels of total weights correlation graph G all metabolic parameters for a group of patients VB -I represent an increase of tension in the body's immune, neuro-



endocrine systems, which indicate the inclusion of additional adaptation reserves to restore the neuro- endocrine regulation. The obtained levels of total weights correlation graph G all metabolic parameters for a group of patients VB-I represent an increase of tension in the body's immune, neuroendocrine systems, which indicate the inclusion of additional adaptation reserves to restore the neuro-endocrine regulation. We estimated the degree of the binding of parameters by correlative graph weight. It was determined of the some kind behavior of the correlative graph weight for the different groups patients  $GVD-I > GVD-II > GVD-I \pm H > GVD-II \pm H$ .

**Conclusions.** Hypertension as an additional load on organism reduces the adaptic possibilities and causes breach of the organism's homeostatic functions (structural and functional disorders of the neuro-endocrine regulation), especially in  $VD-II \pm H$  group. Utilization of the correlation adaptometry results as information about adaptic changes in workers of unhealthy trade is expedient in disease-prevention service. Level of correlation between specially selected indicators of neuro-endocrine regulation will show how the body is adapted to the conditions of labor, habitat as a whole.

**Sukhomlyn N.P., Balashova T.A.**

**THE INFLUENCE OF THE OVERWEIGHT AND OBESITY ON THE  
DEGREE OF HYPERTENSION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Propedeutics to Internal Medicine Department N1, Basis of Bioethics and  
Biosafety**

**Supervisor - ass N.N. Gerasimchuk**

**Introduction:** In Ukraine, as well as throughout the world, arterial hypertension remains one of the most important problems. This is due to the fact that hypertension is a major risk factor of coronary heart disease and cerebrovascular disease, which is determined at 88.1% death rate from diseases blood circulation system, characterized by the high prevalence. In our time it is generally accepted that the level of increase in the frequency of obesity among the population in developed countries is of the alarming rate, so this phenomenon is compared with the epidemic (WHO, 2000; Haffner S. et al., 2003; Eckel RH et al., 2005). The clinical significance of this fact consists in that overweight and obesity are potential factors of the risk for hypertension. Epidemiological studies have established a significant correlation between body mass index (BMI), waist circumference and blood pressure (Brown CD et al., 2000; Wilsgaard T. et al., 2000; Poirier P. et al., 2005) . The probability of developing hypertension in patients with overweight are 50% higher than in patients with normal body weight (Vasan RS et al., 2001).

**Aim:** Study the effect of overweight and obesity on blood pressure in elderly patients.

**Material and methods:** 20 hypertension patients age - from 55 to 62 years (, mean age  $57 \pm 0,9$  years). The number of women is 12, men - 8. This category of persons blood pressure was measured in an upright sitting position on Korotkov during their hospitalization, as well as on the basis of height and weight was calculated body mass index. Patients were examined on the basis of the therapeutic department of the Kharkov hospital number 11.

**Results:** By the level of blood pressure examined patients were divided as follows: 3 people - with 1 degree of arterial hypertension , 11 - with 2 degree and 6 - with 3 degree. In this category of persons identified the following indicators BMI norm - (n = 3, BMI 21-24



kg/m<sup>2</sup>), overweight (n = 10, BMI 27-29 kg/m<sup>2</sup>), obesity I degree (n = 5, BMI 31-34 kg/m<sup>2</sup>), obesity II degree (n = 2, BMI 35-39 kg/m<sup>2</sup>). On the background of the therapy at the time of discharge from the hospital revealed the following indicators of average level blood pressure in this group of people. Patients with a body mass index in the normal the blood pressure less than 124/82 mm Hg (n = 2 blood pressure 122/80 and n = 1 blood pressure 120/70) in patients with overweight blood pressure less than 130/85 mm Hg (n = 5 blood pressure in the range 140/86, n = 2 blood pressure 136/84, n = 3 blood pressure 132/82 mm Hg.) in 7 patients with obesity I and II degree was observed in blood pressure in the range 140 - 155 mm Hg (systolic blood pressure) and 90-98 (diastolic blood pressure) of these 3 patients have blood pressure equal 144/90 mm Hg and 4 patients have blood pressure equal 150/94 mm Hg.

**Conclusions:** For the diagnosis of hypertension formation of risk groups in terms of body mass index was conducted, which made it possible to distribute patient data into relevant categories, to obtain data which indicate that body mass index affects the degree of hypertension.

**Tabachenko E.S.**

**THE SIGNIFICANCE OF APELIN-12 AND OBESTATIN IN THE PROGRESSION OF STRUCTURAL AND FUNCTIONAL CHANGES OF THE LEFT VENTRICLE IN ARTERIAL HYPERTENSION AND DIABETES MELLITUS TYPE 2.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine №2, clinical immunology and allergology.**

**Introduction.** Arterial hypertension (AH) and diabetes mellitus (DM) belong to one of the most common chronic non-communicable diseases. Adipocytes (apelin-12 and obestatin) provides the relationship between the exchange and the development of the pathology of cardiovascular disease by combining into a single symptom of obesity, hyperlipidemia, glucose intolerance, arterial hypertension and diabetes mellitus.

**The purpose** of the present research is to improve the efficiency of diagnosis and treatment of patients with arterial hypertension combined with diabetes mellitus type 2 on the basis of studying of pathogenetic function of adipose tissue hormones, structural and functional parameters of the left ventricle, metabolic disorders and their correlations.

**Results:** to be examined 110 patients with AH who are divided into groups based on the presence of DM type 2. The first group will include patients with AH combined with DM type 2 (n = 70). The second group will make hypertensive patients without diabetes (n = 40). It will be appreciated role apelin -12 and obestatin progression of structural and functional changes in the left ventricle in hypertension and type 2 diabetes, and efficacy of antihypertensive therapy in patients with arterial hypertension and diabetes mellitus type 2 by determining the positive dynamics of lipid and carbohydrate metabolism, structural and functional parameters of the left ventricle and adipocytes.

**Conclusions:** These types of problems require a more detailed study and more research.



Telnova S.

**CHARACTERISTICS OF LIPID METABOLISM IN PATIENTS WITH  
NONALCOHOLIC FATTY LIVER DISEASE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine №1**

**Introduction.** Currently, non-alcoholic fatty liver disease (NAFLD) is one of the leading problems of Gastroenterology. The prevalence of NAFLD in all regions of the world, especially in industrialized countries, which account for 46 % (Williams CD, 2011). Currently, NAFLD is one of the leading problems of Gastroenterology. Fixed annually increasing number of patients with this disease. The formation of NAFLD is closely associated with increased risk of cardiovascular disease. Among the factors that increase the risk of cardiovascular disease in patients with NAFLD isolated lipid metabolism (Bnatia LS, 2012).

**Aim.** Explore the features of lipid metabolism in patients with NAFLD.

**Materials and methods.** The study included 39 patients with NAFLD (18 men and 21 women). Average age - 63.1 (38.0, 78.0) years. The diagnosis of NAFLD and the degree of hepatic steatosis is established using examinations of the abdominal cavity and the clinical and laboratory data. Growth was measured, and the measured weight body mass index (BMI); waist circumference (WC), hip circumference (HC) and the calculated value of the ratio (WC/HC). Lipid metabolism was evaluated by the concentration of total cholesterol (TC) and its fractions: CLHD, CLLD, CVLDL, atherogenic index (AC). The concentration of triglyceride (TG) were determined by enzymatic method.

**Results.** Almost all patients with NAFLD set overweight and obesity - 37 patients (94.87 %). The most numerous group of patients were overweight (  $25 \text{ kg/m}^2 \leq \text{BMI} < 30 \text{ kg/m}^2$ ,  $n = 14$ ), including 10 men and 4 women, mean age - 64.9 (43.0, 78.0) years). And a group of patients with NAFLD obese I degree ( $30 \leq \text{BMI} < 35 \text{ kg/m}^2$ ,  $n = 16$ ), 5 men and 11 women, mean age 58.5 (51.0, 68.0) years. Noteworthy is the prevalence of women in the group of patients with pre-obese (71 % vs. 29 % women), and in patients with obesity degree I prevailed women 68.8% against 31.2 % of men, as well as in patients with obesity II -III degree ( $n = 7,71$  % vs. 29 % of men). Differences in the age groups were found.

In the analysis of lipid metabolism defined lipidogram significant change in the patients examined. Thus, in patients with NAFLD are overweight recorded the following lipid profile: TC ( $5,1 \pm 0,14$ ) mmol/l, TG ( $1,47 \pm 0,08$ ) mmol/l, CVLDL ( $0,65 \pm 0,05$ ) mmol/l reducing background CLHD ( $1,37 \pm 0,12$ ) mmol /l, CLLD ( $3,1 \pm 0,16$ ) mmol/l, AC ( $2,7 \pm 0,27$ ) c.u. In patients with NAFLD with obesity were observed more substantial changes lipid profile; some indicators significantly differ from that of patients with NAFLD are overweight: TC ( $5,67 \pm 0,1$ ) mmol/l,  $p < 0.05$ ; TG ( $1,67 \pm 0,1$ ) mmol/l; CVLDL ( $0,75 \pm 0,06$ ) mmol/l; against the background of a significant reduction in CLHD ( $0,96 \pm 0,05$ ) mmol/l,  $p < 0.05$ , CLLD ( $3,35 \pm 0,23$ ) mmol/l, AC ( $3,2 \pm 0,27$ ) c.u.

**Conclusions.** The findings suggest that the atherogenic lipid profile changes in the patients examined, which are more pronounced in patients with NAFLD with obesity. These features contribute to lipid metabolism progression of cardiovascular disease in patients with NAFLD .



Tereshkin K., Zaytsev P.

**PROGNOSTIC AND DIAGNOSTIC VALUE OF GENE POLYMORPHISM  
FDPS IN YOUNG PERSONS WITH OSTEOARTHRITIS AND OBESITY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of General Practice-Family Medicine and Internal Medicine**

**Introduction.** The prevalence of osteoarthritis (OA) worldwide constant increase in the incidence of disease, severity, high risk of complications and disability population, decreasing age of patients in recent years makes the continued interest in the study of this topic leads to a search for new methods for early diagnosis of the disease for timely effective treatment, improved quality of life for patients, reducing economic and social losses. This also caused topicality work.

**Aim:** improving the diagnosis and prognosis of OA in young adults with obesity on the basis of a comprehensive assessment of clinical and pathogenetic features of the flow, level indicators apelin and calcium metabolism in conjunction with gene polymorphism FDPS.

**Tasks:** 1. Examine gender sensitive clinical and medical history, the nature of certain lesions of joints and radiographic features and densitometric changes in the musculoskeletal system in patients with OA and obesity. 2. Explore apelin content and examine the contents of the indices of calcium homeostasis in serum of patients with OA and obesity. 3. Determine the FDPS gene polymorphism in patients with OA, co-morbid obesity and explore the features of clinical symptoms depending on the frequency of alleles and genotypes. 4. To investigate the relationship between the content apelin, indices of calcium homeostasis, gene polymorphisms FDPS to predict the course of OA in patients with overweight and obesity.

**Materials and methods.** Assumed survey of 100 patients with osteoarthritis, including 60 patients (study group) have OA in combination with obesity and 40 individuals (group) – isolated OA. Groups matched for age and sex. Patients in both groups will be examined characteristics of changes of the musculoskeletal system, measuring the level of nitric oxide and apelinu serum determination gene polymorphism FDPS in patients with OA, comorbid with obesity, with further study of correlation connection between them with a degree of severity of patients in both groups. Will be used in clinical and laboratory biochemical (determination level apelinu – ELISA means levels of calcium in the blood serum), anthropometric (definition of fill volume waist and fill volume hips, their ratio, body mass index (BMI)), instrumental methods (ultrasonic, radiographic, densitometric determination of changes) and genetic methods (determination of gene polymorphisms FDPS, comorbid with obesity).

**Results:** 1. Patients with OA, combined with obesity, have the highest content of apelin in serum. 2. Polymorphism of genes FDPSspryyayetye of OA. 3. Concomitant obesity enhance dismetabolic changes in OA joints, increase the severity of this disease and the incidence of complications and the disability level% ( $p < 0,05$ ). The work will be carried out for the first time a detailed definition of prognostic and diagnostic significance of gene polymorphisms FDPS in young adults with OA and obesity, the relationships between these factors and apelin content, levels of calcium in the blood serum in order to predict the course of patients with OA overweight and obesity.



**Conclusion.** This will help not only in assessing the severity, but subsequently finding new principles and patterns of treatment of severe diseases.

**Tytova G., Liepieieva O., Halo Azad Khidwebagi, Mutaz Marwan Al-Ketan.**  
**AFFECTIVE DISORDERS IN PATIENTS WITH ACUTE HEART FAILURE**  
**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicine №2, clinical immunology and allergology).**

**Aim:** to investigate affective disorders in patients with acute heart failure (AHF) on a base of primary acute myocardial infarction (AMI).

**Material and methods:** 92 patients with AHF with AMI were examined. Patients were divided into 3 groups according to the AHF classification by Killip. The 1st group-22 patients with AHF class I (13 men and 9 women, 58,4±6,8 years of age), the 2nd group-46 patients with AHF class II (27 men and 19 women, 59,4±7,3 yrs), 3d group included 24 patients with AHF class III (13 men and 11 women, 63,6±8,7 yrs). To estimate the degree of anxiety and depression scale Beck Depression Inventory was used. The evaluation was done on the 2nd day of the beginning of AHF and on 12-14th day on a background of standard therapy of the main disease, the correction of affective disorders was carried by fluoxetine use. Also on 2nd and 12-14 days from the onset of the disease in all patients were evaluated according to the Minnesota life with heart failure questionnaire (MLHFQ).

**Results:** During the initial testing in 1st group there were patients with predominant subdepression-15(13±2 points on a Beck's scale) and 7 patients had mild depression (17±2 points), in patients of the 2nd group were identified symptoms of mild depression (18±1points) in 14 patients and moderate severity depression (23±3 points)-in 32 patients, in the 3rd group 10 patients had significant depression (26±2 points), 14 patients-severe depression (36±3 points). According to MLHFQ patients of the 1st group showed 56,3±3,1 points, in the 2nd group-67,8±2,7 points, in the 3rd group-83,8±4,9 points. Subdepressive disorders in patients did not require additional correction and regressed by usage of standard therapy of the main disease. Patients with mild, moderate and severe depression were prescribed to use fluoxetine at a dosage of 20 mg, 40 mg and 60 mg per day, respectively. When repeated testing positive dynamics was observed in all groups as a reduction of the affective disorders by 4 points in 1st gr., by 5 points in the 2nd and in the 3d gr.-7 points. Quality of life improved in all patients mainly by psycho-emotional component: in 1st group-by 64 %. in 2nd gr.-by 47% and in the 3rd-by 38%.

**Conclusion:** Worsening of the depression symptoms with an increase of the AHF severity in patients with AMI was observed. A direct relationship between the severity of affective disorders and decreasing of life quality in patients with AHF was found. Fluoxetine can be recommended for treatment of the patients with AHF on a base of AMI due to absence of negative cardiac influence and positive effect in correction of somatogenic depressions.

**Volik M. S.**

**FEATURES IN TREATMENT OF PATIENTS WITH BRONCHIAL ASTHMA**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Internal Medicine and Nursery №2**

**Introduction.** The proper medicament treatment prescribed by physician is a guarantee of the patient's recovery. However the success of this treatment in many respects



depends on the patient: how precisely he fulfils the given recommendations. Many patients do not understand an importance of keeping the schema of medicamental treatment prescribed by physician and do not adhere to recommendations. The important role in a health maintenance and efficiency of treatment is played by the patient's readiness, his desire to follow medical instructions, namely: an intake of all prescribed drugs in the correct quantity, at a certain time and according to the administered food regimen.

**The purpose** of our study is to reveal patients who are insufficiently attached and related to risk group, to produce a model of the measures, directed to rising adherence to treatment.

**Materials and methods.** In the study we used a clinical method of estimating an adherence. We had asked patients by means of the standardized Moriski-Green questionnaire which allows to estimate an efficiency of administered therapy and to fulfil the medical recommendations. The questionnaire consisted of 4 problems, thus each item was assessed by a principle "Yes – No". The answer "Yes" was 0 points, and the answer "No" – was 1 point. The patients, who have got 4 points, were considered as attached, 3 points – insufficiently attached and related to risk group on developing the adherence, 2 points and less – unattached. We have investigated 22 patients of I – IV degrees of bronchial asthma (BA). Patients of compared groups initially were comparable on an age, sex and degree of bronchial asthma. So, the age of the interrogated patients fluctuated from 20 to 71 years old, among them – 7 men and 15 women; 3 patients had I degree of bronchial asthma, 3 – II degree, 14 – III degree, 2 – IV degree.

**Results.** As a result of the spent inquiry we have become clear that only 2 female patients were adherent, 12 people – unattached to treatment and 8 – in risk group. 1 man and 7 women were in a risk zone, equal quantity (6 patients) men and women were inadherent. At comparison of age categories it was revealed that adherent patients were at the age of 50, in a risk group there were patients of young age and elderly. Having compared patients on asthma degree, we have known that patients of III and IV degrees were attached; in a risk zone there were patients: with BA I degree – 1 patient, BA II degree – 2, BA III degree – 5; unattached were: BA I degree – 2 patients, BA II degree – 1, BA III degree – 8, BA IV degree – 1.

**Conclusions.** Thus, for improvement of adherence of patients to treatment it is necessary to choose tactics of relationships with the patient, based on trust, respect and mutual understanding. It promotes a possibility to explain intelligibly to the patient the purpose of treatment and necessity of following the recommendations. The better the patient is informed, the more the motivation is attached to his treatment. It is also necessary to give the chance for the patient to acquire knowledge, skills and confidence in the importance of personal involvement to the treatment of his disease. Self-control will give the chance to make sure of efficiency of therapy and will increase a patient's belief to the prompt recovery.

**Yeryomenko G.**

**NONSPECIFIC ADAPTIVE REACTIONS IN PATIENTS SUFFERING FROM  
BRONCHIAL ASTHMA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal medicine №2 and nursing**

**Introduction.** Nowadays cellular and molecular abnormalities responsible for bronchial inflammation, typical and relevant pathophysiological and clinical characteristics



of asthma are identified. New diagnostic capabilities provide clinicians with the opportunity to obtain reliable data on the existence of pronounced inflammation in the bronchi, even in case of minimal clinical symptoms at the early stages of the disease. A number of questions of the pathogenesis of asthma is not fully studied. It is found that the clinical manifestation and prognosis of the disease are correlated with the adaptive reactions of the organism. At present there known four nonspecific adaptive reactions of the organism ( NARO ) - stress ( RS), training ( RT ), quiet ( RQA ) and increased activation ( RIA). Every stressor, causes the activation of the hypothalamic centers. In the hypothalamus the signal is switched to the efferent pathways that lead to activation of a sympathetic- adrenal and pituitary- adrenal systems, resulting in increased secretion of adrenalin and glucocorticoids.

**Aim.** To examine the types of non-specific adaptive reactions in patients with asthma.

**Materials and methods:** We used data obtained from the survey of 81 patients and treatment of asthma. We studied the clinical history, clinical blood and urine tests, daily urine output, the functional state of the lungs: peak flow monitoring, spirometry, data of immunological studies, which included a study of the overall immune status of I-II level, cytokines IL-4 ,TNF $\alpha$ .

**Results:** Taking into account all the indicators of NARO suggest that in patients with asthma of IV stages comes the depletion of adaptive capacity of the organism.

**Conclusion:** Found by us the correlation between FEV<sub>1</sub> and TNF $\alpha$  ( $r = -0,42$ ) serves as an example. All patients with NARO -RS, regardless of form, had low reactivity.

**Zaitsev P.**

## **CLINICAL FEATURES OF OSTEOARTHRITIS IN PATIENTS WITH AUTOIMMUNE THYROIDITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of General Practice - Family Medicine and Internal Diseases**

**Introduction.** A modern patient is characterized by a combination of several chronic diseases – polymorbidity. In such circumstances, patients with osteoarthritis (OA) deserve special attention, because, as a rule, they have 5-6 comorbidities. High comorbidity in OA is due to a significant risk of other pathologic conditions in these patients. In recent years, the researchers' attention is attracted to the prevalence of thyroid abnormalities, primarily autoimmune thyroiditis (AIT), among patients with OA.

**The aim** of our study was to investigate the clinical features of the comorbidity of OA and AIT depending on the level of thyroid hormones.

**Material and methods.** 15 patients were examined with OA and AIT, which formed the main group and 10 patients with isolated OA included in the comparison group. The diagnosis of OA was established under criteria of the American College of Rheumatology (ACR, 1990) and recommendations of the Association of Rheumatology of Ukraine (2005). We conducted a clinical examination with the joint function definition, articular index calculation (WOMAC and Lequesne Scores), study of the serum level of thyroid hormones, joints radiography and thyroid ultrasound. Statistical analysis was performed using the software package Statistica for Windows.

**Results.** Our study showed that the average age of the examined patients was  $56,0 \pm 5,3$  years and the majority of patients was women (73%). We founded that in patients with AIT the occurrence of OA was at a younger age comparing with the control group ( $37,1 \pm 0,5$  and  $46,3 \pm 1$  years), and OA was usually in generalized form (53,3 % of cases). Isolated knee



lesions was observed in 5 patients (33,3%), hand lesions - in 2 patients (13,3%). The same tendency to an earlier debut of OA was higher in a group of AIT patients with hypothyroidism (60% of patients) than in euthyroid (33,3%) and hyperthyroid patients (7%). Levels of pain at rest ( $40,23 \pm 1,64$ ), on exertion ( $63,2 \pm 1,51$ ), and Lequesne index ( $11,03 \pm 0,88$ ) in patients with AIT were higher than the same marks in isolated OA.

**Conclusion.** AIT availability leads to earlier occurrence of OA and is associated with generalized joint damage. In addition, the lack of thyroid function makes the course of joint pathology more pronounced. Thus, AIT with hypothyroidism can be considered as a risk factor of the OA development.

**Zaozerskaya N.V., Sanina I., Nduka Tagbo Charles**  
**QUALITY OF LIFE AND PSYCHOLOGICAL TRAITS OF CHARACTER IN**  
**PATIENTS WITH DIABETIC NEPHROPATHY AND OBESITY**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of internal medicine № 2**

**Introduction:** Diabetic nephropathy is the most severe complication of diabetes mellitus, which has an impact as on physical so on emotional status during the process of its progression. Obesity deteriorates the quality of patient's life too. The purpose of the present investigation is to learn influence of the clinic-psychological factors on the quality of life of patients with diabetic nephropathy and obesity.

**Material and methods:** We used Short Form Health Survey-36 (SF-36) questionnaire, psychological tests: Spielberg, EPI, Schmieschek, socio-demographics and clinical parameter characteristics for examination of the patients with DM complicated with diabetic nephropathy (DN) and obesity. The study enrolled 50 patients with DM, chronic kidney disease (CKD) - DN (M-59%, F-41%; mean age - 41.3 years): 35 pts with type 1 (DM 1) and 15 pts with type 2 (DM 2) diabetes mellitus, which were examined in Regional hospital. 53% of the patients suffered from obesity 1, 2, 3 stages, 47 % had normal weight.

**Results:** Worsening of quality of life for people with diabetes mellitus and obesity found decreasing of role physical functioning and vitality, energy or fatigue. Personal psychological status of the patients with DM and obesity had revealed diminished levels of the patients' health and activity, but much higher mood. I was shown more high level of introversion in DM and obesity, and high level of personal anxiety and situational anxiety. Choleric, phlegmatic, melancholic number of patients was the same as in obese and normal weight groups.

**Discussions:** Health-care professionals should monitor quality of patient's life, personal psychological pattern to prescribe the effective treatment and affect the social rehabilitation.

**Zavgorodnyaya E., Tsvetkov V.**  
**THE LIFE QUALITY OF PATIENTS WITH DIABETES MELLITUS OF THE**  
**II TYPE, COMPLICATED BY CARDIAC AUTONOMIC NEUROPATHY.**

**Crimea State medical university named after S.I. Georgievsky**

**Propedeutics of the Internal Medicine department. Simferopol, Crimea, Ukraine**

**Introduction.** The life quality (LQ) of patients with diabetes mellitus of the II type (DM II) is a criterion that summarily reflects the emotional and social state and allows



assessing the effectiveness of provided therapy. Cardiac autonomic neuropathy (CAN) is one the most common complications of DM and a key factor, associated with the poor prognosis and increased risk of mortality in patients. According to Saint-Vincent WHO declaration and the international federation for diabetes mellitus (1989), the integral part of diabetes treatment is the LQ enhance in patients with DM II.

**Aim.** The main purpose of the present study was to investigate the LQ in patients with DM II, complicated by CAN.

**Materials and methods.** The study involved 22 patients (aged 47-76) with compensated and sub-compensated ( $HbA1c \leq 9\%$ ) type 2 diabetes, who were administered the 36-item health-related quality of life questionnaire SF-36 (SF-36 Health Status Survey). All patients were divided into two groups: with DM II, complicated by CAN ( $n=10$ ) and without it ( $n=12$ ) by the results of heart rate variability (HRV) analysis during Holter ECG-monitoring.

**Results.** The significant ( $p < 0,05$ ) decrease of the LQ among diabetic patients within all subscales was established: Role-Physical (RP), Bodily Pain (BP), Vitality (VT), Social Functioning (SF), Role-Emotional (RE), Mental health (MH), Physical Functioning (PF) and General Health (GH). The physical (PCS) and mental component (MCS) summaries were also lower than the average norm in all patients. Physical functioning was limited to a different extent – from mild to severe. Thereby some patients were restricted in such activities as running, lifting heavy objects, or participating in strenuous sports while the others couldn't walk even 100 yards or bathing and dressing oneself. At the same time the most part of patients felt nervous, downhearted or depressed and cut down the amount of time spent with friends and family; also they very rarely experienced the sense of calmness and happiness. No significant gender differences were found. In addition to that such subscales as PF, RP, RE и GH were significantly lower in patients with concomitant CAN compared to those without the mentioned complication ( $p < 0,05$ ). It was revealed that PF и RE components had been significantly decreasing with the length of DM II. The positive correlation between PF, RP subscales and frequency-domain HRV parameters such as HF and LF were observed ( $0,56 < R_s < 0,59$ ,  $0,002 < p < 0,03$ ), as well as connection between SF, VT and time-domain character - SDNN. Simultaneously PCS and MCS were significantly related to HbA1c ( $0,36 < r < 0,50$ ;  $p < 0,01$ ) and DM II duration ( $r = 0,42$ ,  $p < 0,001$ ) – the longer is the duration of diabetes and the higher is the level of HbA1c the worse is patients physical and mental component summaries.

**Conclusion.** The high level of glycemia and the duration of diabetes mellitus, leading to such complication as CAN considerably decrease the quality of life in all patients. Physical and Role Functioning as well as emotional state are decreased the most, that in general negatively affects both physical and mental component of general health. The last by-turn causes dysadaptation, worsens compliance and the effectiveness of the therapy.

**Zelena I.I., Goptcii O.V., Zhelezniakova N.M., Stepanova O.V.**

### **SIDEROPENIC SYNDROME AND HELICOBACTER PYLORI: A POSSIBLE ASSOCIATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of internal medicina №1**

**Introduction:** Iron deficiency anemia has a high prevalence in women of reproductive age, especially in pregnant women (50%), with serious consequences on the mother and the



fetus. Anemia is responsible for about 10-15% of all maternal deaths worldwide. There are different and sometimes contradicting reports on the role of *Helicobacter pylori* in causing anemia. On the other hand, *Helicobacter pylori* infection and its well-known complications are of high prevalence in developing countries. The association between *Helicobacter pylori* and iron deficiency anemia has been established. Multiple mechanisms have been advocated to explain the relationship between *Helicobacter pylori* and iron status and their association might reduce iron deposit.

**Aim:** to investigate whether *Helicobacter pylori* infection affects iron metabolism.

**Material and methods:** 80 subjects (women - 35, men 45; medium age - (35,0+7,5) years) underwent upper gastrointestinal endoscopy and biopsy to investigate the presence of *Helicobacter pylori* and, when this was positive, also search of serum anti-CagA was performed. Patients presenting manifest causes of blood loss or any other disease likely to cause iron deficiency, were not include to the study. Tests included an oral iron absorption test with the administration of 1 mg/kg of Fe<sup>2+</sup>. Iron levels were measured before and 2 hour after iron administration (delta iron). *Helicobacter pylori* - positive subjects were administered anti- *Helicobacter pylori* treatment and, 2 months later, the oral iron absorption test was repeated and stool-test was first performed.

**Results:** *Helicobacter pylori*-positive subjects had significant lower serum level of ferritin and lower delta iron compared to *Helicobacter pylori*-negative subjects. After *Helicobacter pylori* eradication iron absorption test was similar to those of non-infected subjects.

**Conclusion:** *Helicobacter pylori* infection impairs iron uptake. That mechanism, together with others, may contribute to the depletion of iron in infected patients.

**Zhelezniakova N.M., Zelena I.I., Goptcii O.V, Stepanova O.V**

**CERULOPLASMIN AS MARKER OF SYSTEMIC INFLAMMATION IN PATIENTS WITH COMORBIDITY OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE AND CHRONIC PANCREATITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Internal Medicine № 1**

**The aim** of presented study was to determine the content of ceruloplasmin in patients with comorbidity with chronic obstructive pulmonary disease (COPD) and chronic pancreatitis.

**Materials and methods.** 87 patients were examined: 62 individuals with COPD in combination with chronic pancreatitis – main group, and 25 patients with an isolated course of COPD - group of comparison. Standard values obtained when examining 20 practically healthy persons of similar age and gender – control group. Determination of serum level of ceruloplasmin performed by the method of V. Kamyshnikov. Statistical analysis was performed using licensed programs «Microsoft Excel» and «Statistica 6.0».

**Results.** The study showed that COPD exacerbation was accompanied by an increase of acute phase reactants, namely – ceruloplasmin, as in patients from the group with isolated COPD, as when it is combined with chronic pancreatitis. In patients with a comorbid pathology was found a significant increase of ceruloplasmin content in blood to 415,7±31,0 mg/l, which is 1.5 times the value of healthy individuals - 276,0±33,0 mg/l (p<0.05). At the same time, ceruloplasmin levels in patients with isolated COPD also tended to increase



( $311,0 \pm 28,0$  mg/l) and the control numbers exceed 1.1 times, but these differences were not significant ( $p > 0,05$ ). When comparing the performance between groups of examinees significant differences were revealed ( $p < 0,05$ ) in ceruloplasmin activity.

**Conclusions.** Thus, as a result of studies, it was found that there was an exacerbation of COPD, in the isolated course of disease, just as when it is combined with chronic pancreatitis. There was an observed increased activity of ceruloplasmin, indicating the development of an inflammatory response. At the same time, indexes of patients with comorbidities of COPD and chronic pancreatitis were significantly higher and had significant differences from those in patients with isolated COPD, suggesting a significant increase in systemic inflammatory reactions in comorbidity, even in the remission of concomitant disease.



## SURGERY, TRAUMATOLOGY AND ORTHOPEDICS

**Allakhverdiiev E., Knigavko A., Ostroplets A**  
**ERECTILE DYSFUNCTION AND COMORBID PATHOLOGY**  
**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Erectile dysfunction is a widespread pathology that affect the quality of life of 23% Ukrainian men aged 30-65 years. It is the inability to achieve or maintain an adequate penile erection necessary for the introduction of the penis into the vagina and the quality of sexual intercourse, which in turn limits or makes impossible a satisfactory sexual intercourse.

**Aim.** To investigate the relationship between somatic pathology and erectile dysfunction.

**Materials and methods.** In 120 men with erectile problems addressed in Andrology Departments HOKTSUN them. V.I. Shapoval and 24 men with no complaints, conducted a comprehensive survey: IIEF questionnaire, medical history, personal history, examination of patients, laboratory data (determination of the level of testosterone), ultrasound sex organs (prostate, scrotum).

**Results.** There wasn't significant difference between the level of testosterone in control and study groups (mean =  $7,4 \pm 0,2$ ). 60% of patients with erectile dysfunction were observed related to angina and hypertension (30%), ulcers (20%), and the combination of these diseases (10%). The main role in the development of ED in these patients played a  $\beta$ -blockers (labetalol, atenolol, nadolol), diuretics (spironolactone), H<sub>2</sub>-blockers (cimetidine and ranitidine). There was a significant difference between the quality of life in the group of men with comorbid pathology (72 people) and 48 men with erectile dysfunction only (mean  $16,4 \pm 1,3$  and  $27,9 \pm 2,1$  respectively). Also it should be noticed that this difference is mainly обусловлена by the difference in scores in Family and Psychological health parts of the questionnaire.

**Conclusion.** Often erectile dysfunction is a side effect of treatment of hypertension and angina. Therefore their combination requires further study and development of alternative treatments for patients with erectile dysfunction.

**Barysh A.<sup>1</sup>, Kozyryev S.<sup>2</sup>**

**PRELIMINARY RESULTS OF ANTERIOR CERVICAL INTERBODY  
FUSION WITH DYNAMIC PLATES AND TITANIUM MESH CAGES IN  
PATIENTS WITH LOCAL STENOSIS ON TWO ADJACENT LEVELS**

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Institute for Spine & Joints Pathology; <sup>2</sup> Orthopedic Department, Kharkiv Regional  
Traumatological Hospital**

**Introduction** In surgical treatment of degenerative diseases of the cervical spine nowadays the most widespread type of surgical treatment is discectomy and fusion, but in cases of local stenosis on two adjacent levels, caused by disc herniation and spondylosis there are controversies about which type of surgery is preferable. One of the options is corpectomy and anterior cervical interbody fusion (ACIF) with vertical mesh cages as interbody support in combination with hybrid dynamic cervical plates (DCP), which became



recently popular because of their biomechanical advantages. Nowadays there are lack of studies on using hybrid DCP combined with mesh cages in ACIF in treatment local stenosis on two adjacent levels, caused by disc herniation and spondylosis.

**Aim:** to evaluate ACIF using titanium mesh cages and hybrid DCP, which allows translational and rotational dynamization after one - level corpectomy for the treatment of local degenerative stenosis of cervical spine

**Material and methods:** We evaluated clinical and radiographic outcome of 3 patients with degenerative diseases of cervical spine, 1 man and 2 women among them, who were treated at the Kharkiv regional traumatological hospital during 2013- 2014 years. The period of observation was from 2 to 7 months. Age of patients varied from 30 to 59 years. We performed one level corpectomy and ACIF in all cases because of local stenosis on two adjacent levels, caused by disc herniation and spondylosis. In all the cases we used DCP of construction, designed at the Institute, that allows rotational and translational dynamization, and cages, filled with iliac crest bone autografts. All the patients were evaluated with JOA score. Clinical outcomes were evaluated using Odom's criteria. Radiological evaluation was performed preoperatively and postoperatively, including X-ray and CT examination, where measurements were carried out according to original system, developed at the Institute. Fusion signs were evaluated according Bridwell criteria. Position of implants was evaluated according to developed by authors classification.

**Results.** Fusion grade 2 was noted at 7 months follow up in 2 cases, fusion grade 3 was noted in 1 patient at 2 months follow up. Mean JOA score improved significantly from  $10.3 \pm 1.3$  points to  $13.1 \pm 1.4$  points at the final follow-up. Surgery related complications included transient dysphagia in one patient. Using developed original system of radiological evaluation and position of implants criteria, we identified new data on fusion process and implant position in dynamics when using hybrid DCP.

**Conclusions.** Based on our preliminary results, we conclude that one level cervical corpectomy and fusion using mesh cages and hybrid DCP is effective for treatment of local cervical degenerative stenosis on two adjacent levels, as evidenced by good clinical results, good fusion rate, maintenance of segmental cervical lordosis.

**Basylaishvili S.Yu.**

## **DETERMINATION OF THE LUNG CANCER SENSITIVITY TO NEOADJUVANT CHEMOTHERAPY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Oncology**

**Introduction.** Lung cancer in the structure of cancer incidence and mortality ranks first among the male population of Ukraine. The effectiveness of chemotherapy in patients with the same histological tumor type differs.

**Aim.** To determine the sensitivity of the lung squamous cell carcinoma to the ongoing therapy before surgery in order to select the regimen in the further treatment.

**Material and methods.** We examined 10 patients with squamous cell lung cancer stage 3 aged from 57 to 63 years (9 males, 1 female) who underwent histological examination of the tumor before neoadjuvant chemotherapy (NCT) and after surgery. Chemotherapy was performed according to standard schemes. A comparison of pathomorphism in histological preparations before and after surgery was performed.



**Results.** Complete pathological tumor regression with IV degree pathomorphism has not been achieved, III degree - 4 patients, II degree - 5 and I degree - 1 patient. This allowed to establish different sensitivity to NCT with the same histological structure and provided an opportunity to further optimize adjuvant NCT in the postoperative period. To patients with low pathomorphism was decided to conduct the second-line adjuvant NCT.

**Conclusions.** In patients with the same histological structure efficiency of NCT differs. To patients with low pathomorphism the second line NCT should be applied.

**Byzov D.V., Shevchenko Ye.V.**

**DEVITALIZED XENOGENIC VASCULAR GRAFTS: 3 YEARS AFTER  
EXPERIMENTAL TRANSPLANTATION.**

**Institute for Problems of Cryobiology and Cryomedicine, Kharkov, Ukraine**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of General Surgery №2**

**Introduction.** Xenogeneic tissues treated with modern biotechnological approaches reducing immunogenicity degree may solve the problem of small diameter vascular grafts` deficit. Technologies of decellularization/devitalization with use of different chemicals show some serious shortcomings connected with residual cytotoxicity and decreasing of biomechanical strength of vascular wall. Nowadays use of physical factors to reduce of xenogeneic tissues immunogenicity is considered as very promising.

**Aim.** We used two physical factors: low temperatures and electron beam irradiation to create hypo-immunogenic small-diameter biological vascular grafts based on xenogeneic arteries.

**Materials and methods.** The research objects were porcine intrathoracic arteries. Isolated vessels were placed into sterile cryotubes and plunged into liquid nitrogen. After following thawing the tubes were irradiated with electron beam. Morphology of treated arteries was estimated by electron and optical microscopy. Strength- and burst-tests have been done to study biomechanical properties of vessels. To study biocompatibility and immunogenicity degree devitalized vessels were subcutaneously implanted to rats. Experimental xenotransplantation of devitalized arteries into abdominal aorta position to rabbits was performed to estimate hemocompatibility, functionality and patency of treated arteries.

**Results.** Freezing led to partial desquamation of endothelium layer and initial damages of smooth muscle cells. The following ionizing irradiation resulted in a complete deendothelization and significant destruction of smooth muscle cells. Connective tissue fibers of vascular wall were mainly preserved. Used physical factors increased strength parameters of arteries in longitudinal and radial directions while arteries` plasticity in the area of physiological load did not differ from native vessels. Subcutaneous implantation of arteries has shown the formation of significant cellular rejection in the group of native arteries. While any signs of inflammation in the group of devitalized arteries were noted. The length of transplanted into bloodstream devitalized grafts was from 2 to 7 cm. Acute thrombosis after the surgery were absent. For today the maximum duration of postsurgical observation makes 3 years. To 14th month after the surgery the grafts were seeded by recipient`s fibroblasts and smooth muscle cells predominantly from the side of lumen and



adventitia. Intensive growth of newly-formed connective tissue fibers were noted within vascular wall.

**Conclusion.** Combined action of low temperatures and ionizing irradiation allows reducing of xenogeneic arteries immunogenicity and designing of integrally functioning hypo-immunogenic small-diameter biological vascular grafts. Positive results of experimental transplantation

**Dubivska S., Golubka T.**

### **THE DYNAMICS OF CHANGES OF COGNITIVE FUNCTION AFTER SURGERY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Critical Care Medicine, Anesthesiology and Intensive Care**

**Introduction.** The question of changing of the higher brain functions during surgical procedure using general anesthesia is very interesting for clinical medicine. The extent and the feature of drugs' influence on cerebrum during general anesthesia were mentioned in different literature. It was clinically determined that during general anesthesia there are some brain perfusion changes, changes which are connected with intracranial pressure and others which in consequence lead to different disorders of higher brain function. It was noted that the extent and variety of pathological manifestations of higher cerebral function depend on different factors: the type of anesthesia, anesthetic, state of neurological, somatic patient status before surgical procedure, the patient's age, the duration of surgical procedure and more.

**The aim** of these studies is to assess cognitive function in patients after surgical procedure with general anesthesia in comparison with the preoperative state.

**Material and methods.** 1-2 days before and 4-5 days after surgical procedure we examined cognitive changes of 50 patients who had laparoscopic cholecystectomy using general anesthesia with multi-component mechanical ventilation with use of propofol and fentanyl. Patients had no mental, somatic uncompensated medical history, drug addiction, alcoholism, hereditary diseases. Testing was conducted in the first half of the day using well-known standard techniques. The cognitive sphere was investigated by means of rating scale of mental status (Mini Mental State Examination - MMSE), clock drawing test, the battery of frontal dysfunction (Frontal Assessment Battery - FAB), a method of memorizing 10 words by Luria, Schulte's tables.

**Results.** The findings indicated that there are certain changes in cognitive areas for this group of patients. In the preoperative period according to all methods, the result was within the normal range, indicating a lack of cognitive changes. Postoperatively according to the scale MMSE 34.5% of patients had 24-27 points. According to the clock drawing test 8-10 points were observed in 20.7% of patients and 13.8% of them had 4.8 points. The scale FAB showed that 14-16% of patients had 16-18 points and 86.2% of them had 16-18 points. According to the methodology by Luria patients had to repeat words 7-9 times and they made 2-4 mistakes. It was noted the increase in the number of mistakes according to Schulte's tables as well.

**Conclusions.** The above mentioned research of cognitive sphere found in a postoperative period by comparison to the preoperated period with the use of general anesthesia showed that patients had mainly "slight" changes of cognitive function. The research study in this direction will help to work out the algorithms of measures for the



prophylaxis of possible violations of cognitive sphere for patients after general anesthesia. In the complex correction of postoperative cognitive dysfunction we provide the inclusion of neuroprotective medications according to medical scheme, depending on age of patient.

**Gorbenko K.V.**

**ROLE OF OXIDATIVE STRESS PARAMETERS IN THE DIAGNOSIS OF  
POSTTRAUMATIC PANCREATITIS**

**Kharkiv national medical university, Kharkiv, Ukraine  
Surgery №1 department**

**Introduction.** The pancreatic injuries are observed in 3-15% of patients with abdominal trauma and are characterized by high mortality, which reaches 45-50%. The main complication of pancreatic parenchyma injury is traumatic pancreatitis (PTP), which most often occurs during the contusion of the pancreas. It is known that oxidative stress is one of the key mechanisms in the posttraumatic complications development that occurs as a result of hypo-perfusion, reperfusion, endothelial damage and systemic activation of the immune response in patients with polytrauma. The release of cytokines and systemic inflammation triggered reactive oxygen species (ROS) and can lead to mitochondrial dysfunction, tissue damage, organ damage and death.

**Aim:** To determine the role of oxidative stress parameters in the diagnosis of PTPs at the early stages of its development.

**Materials and methods.** The study was conducted by analyzing the results of a comprehensive clinical and laboratory examination and treatment of 41 patients with pancreatic trauma, who were hospitalized in the department of anesthesiology and polytrauma of Kharkiv municipal clinical hospital and emergency care. Depending on the type of injury of the abdomen, splenectomy, suture rupture of the liver, greater omentum, kidney, intestine, electrical welding of the pancreas, intubation with subsequent bowel cholecystostomy, drainage of omental, peritoneal cavity were performed. In 2 patients with complete rupture of the pancreas distal resection was performed. Expression of oxidative stress was assessed by the level of TBA-active products and the rate of total antioxidant activity in the serum of patients on the first, the third, and the seventh postoperative day.

**Results.** Since oxidative stress is defined as an imbalance between production and elimination of free radicals, oxidative status characteristics of patients with pancreatic trauma was performed by the level of lipid peroxidation (TBA-active products) and by total antioxidant activity in serum. As a result of the studies it was found that at the third day after injury in patients with pancreatic trauma a significant increase in the concentration of TBA-active products was determined, which was more pronounced under conditions of PTP. It should be noted that on the 7th postoperative day in patients without PTP normalization of this index was noted, whereas acute pancreatitis was accompanied by further intensification of the process of lipid peroxidation, as evidenced by a more than 2-fold increase of TBA-active products in serum compared with patients without pancreatitis.

Thus, the increasing concentrations of TBA-active products in the serum of patients with pancreatic injury may indicate a strengthening of inflammatory and destructive processes, inducing the development of PTP. An important factor that influences the severity of oxidative stress is as antioxidant protection system that prevents, promotes detoxification and recycling of free radicals. In determining of the total antioxidant activity



in serum it has been found that in patients with PTP in the first days after injury higher rates compared with patients without the development of the above complications were noted. This fact can be explained by a growth of TAA in response to increased formation of ROS due to injury. However, starting from 3 days in patients with PTP noted a steady decline TAA, which persisted in 7-day postoperative period. At the same time, in patients without PTP this integral indicator of the antioxidant system was not only not decreased in a week after the injury but even increased in comparison with the first day.

**Conclusions.** Thus, the determination of oxidative stress parameters in the serum of patients with pancreatic trauma can have a diagnostic value in the early stages of PTP.

**Halo Azad Khidwrbagi**

### **THE DANGEROUS OF HYPEROSMOLAR SOLUTIONS IN CRITICALLY ILL PATIENTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**The department of Emergence Medicine, Anesthesiology and Intensive Care  
Mentor-Prof.Fesenko U.A**

**Introduction:** Sodium is very important for maintain osmolality of extracellular fluid in human body. In Ukraine the infusion of hypertonic hyperosmolar solutions such as Reosorbilact (sodium 278 mmol/l and osmolality 900 mosm/l) are widely used in the treatment of many critical illness. This can lead to increased sodium level in plasma. The hyperosmolarity of plasma cause decreasing the cell volume in hyperhydration and dehydration too. The plasma level of Na has influence on hemodynamic parameters.

**The aim** of this investigation was the evaluation of sodium level in ICU patients who gave reosorbilact infusion and its correlation with hemodynamics.

**Materials and methods:** 10 patients in the intensive care department of Kharkov Regional Hospital were included in the study, all patients had reosobilact infusion 400 ml per day. Sodium level was detected. The correlation between plasma Na and hemodynamic parameters were calculated. Hemodynamic parameters were determined by monitor "UTAS": blood pressure systolic (BPs), diastolic (BPd), pulse rate (PR). Statistical methods: average (M), standard deviation ( $\sigma$ ), the correlation coefficient (r). The results are given as  $M \pm \sigma$ .

**Results:** The mean level of plasma sodium among all patients was  $153 \pm 12$  mmol/L, BPs was  $128 \pm 36$  mmHg, and this parameter had a moderate positive correlation ( $r = 0,39$ ) with plasma level of Na. BPd was  $74 \pm 24$  mmHg, it had a mild positive correlation ( $r = 0,27$ ) with plasma level of Na. The average pulse rate was  $92 \pm 15$ /min, and this parameter had the most positive correlation ( $r = 0,59$ ) with plasma level of Na.

**Conclusion:** The results of our study suggest that infusion of solutions with high content of Na leads to hyperosmolarity of plasma in critically ill patients, which can provide hyper dynamic state of circulation.

**Halo Azad Khidwrbagi, Truvov Gennadiy Vitalieich.**

### **NEW PLAN FOR TREATMENT LUNG CANCER AND GLI INHIBITION AS A NEW STRATEGY TO TREAT LUNG SQUAMOUS CELL CARCINOMA .**

**Kharkiv national medical university, Kharkiv, Ukraine**

**The department of Oncology**



**Aim:** In this study we investigated the role of HH-GLI signaling in LSCC, and studied the therapeutic potential of HH-GLI signaling inhibition. Lung squamous cell carcinoma (LSCC) comprises ~30% of non-small cell lung cancers and currently lacks effective targeted therapies. Although the overexpression of HEDGEHOG (HH)-GLI signaling components has been reported in LSCC patient samples, the requirement for HH-GLI signaling in regulating LSCC cellular survival and proliferation remains unknown,

**Material and methods:** Two independent LSCC patient cohorts were analyzed for gene expression to study the activation pattern of HH-GLI signaling. Four representative human LSCC cell lines were examined for expression of HH-GLI signaling components. Cell proliferation and apoptosis were assayed in these cells after blocking the HH-GLI pathway by lentiviral-shRNA knockdown or small molecule inhibitors. A xenograft model in immunodeficient mice was used to determine the in vivo therapeutic efficacy of GLI inhibitors.

**Results:** LSCC has been classified into four distinct mRNA expression subtypes. In both cohorts, the classical subtype (~36% of LSCC) showed a HH-GLI activation pattern with increased expression of positive regulators and decreased expression of negative regulators relative to the other three subtypes. Particularly, GLI2 was consistently highly expressed in the classical subtype, and strong positive correlations between GLI2 and the classical subtype markers (SOX2, TP63 and PIK3CA) were observed, suggesting an important role of GLI2 in this subtype. In three GLI2-positive LSCC cell lines, genetic deletion of GLI2 by lentiviral-shRNAs caused extensive apoptosis and significant growth inhibition, indicating a critical role of GLI2 in regulating cell survival and cell death. Pharmacological inhibition of HH-GLI signaling by GLI inhibitor GANT61 phenocopied the loss of GLI2 in GLI2-positive cells, but had little effect on a GLI-negative cell line. In the xenograft model, GANT61 significantly suppressed tumor progression and reduced final tumor weight for GLI2-positive cell lines in comparison to solvent control, but had no effects on the GLI-negative LSCC tumors, suggesting a specific anti-tumor activity of GANT61. The expression of HH downstream targets was significantly reduced by GANT61 both in vitro and in vivo, demonstrating a successful blockage of the HH-GLI pathway. In contrast to GANT61, GDC-0449, a clinically available SMO inhibitor, only produced limited cytotoxicity in vitro despite the universal expression of SMO, indicating the existence of SMO-independent activation of GLI signaling in these cells. Arsenic trioxide (ATO), an FDA-approved treatment of acute promyelocytic leukemia, has recently been shown to inhibit GLI2 ciliary accumulation and promote its degradation in other cell types. Therefore, we are also investigating the clinical relevance of ATO in treating a selected subset of LSCC that has GLI2 overexpression.

**Conclusions:** Our studies reveal an important role of GLI2 in LSCC cell survival. Different from standard-of-care chemotherapy or inhibiting kinase signaling cascades, we present a potential strategy to treat a particular subset of lung squamous cell carcinoma by targeting the GLI transcriptional network



**Hayder Hasan Hadi, Boyko V.V.<sup>2 3</sup>, Belozеров I.V.<sup>13</sup>, Avdosyev Yu.V.<sup>3</sup>,  
Myroshnychenko D.A.<sup>2</sup>**

**MINIMALLY INVASIVE METHODS OF TREATMENT OF PATIENTS WITH  
THE SYNDROME PORTAL HYPERTENSION, COMPLICATED BY BLEEDING  
FROM ESOPHAGEAL AND GASTRIC VARICES**

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**Aim:** research and optimization of surgical tactics, hemostasis methods at bleedings from esophageal and gastric varices (EGV) at patients with a syndrome of a portal hypertension (PH) with use endovascular and endoscopy technologies directed on decrease of a lethality and frequency of complications.

**Introduction:** One of principal causes of death of patients with PH is the bleeding from EGV. Lethality in the first case of a bleeding from EGV are 30-70 %. Bleeding relapse at one hospitalization which has arisen at 20-40 % of patients, increases a lethality to 80 %.

**Material and methods:** we inspected and analyzed results of treatment of 52 patients with PH complicated by a bleeding from EGV were on treatment in IGUS AMSU from 2004 to 2014. The control group was made by 35 patients by whom traditional methods of treatment were carried out. The basic group was made by 17 patients at which the individualized approach to a choice of medical actions was used. Attention accented on definition of a source and bleeding severity level that in a combination with an individual approach of a way endovascular and endoscopy interventions, and also on the basis of definition and correction of infringements hepatosplenic blood circulations and ethyopatogenetic therapy has allowed: considerably to raise efficiency of a hemostasis and to lower a lethality (16,1 % in control group, 5,4 % in basic group), considerably to reduce quantity of relapses of bleedings (37,3 % in control, against 6,8 % in basic group). To lower quantity urgent operations at «bleeding height», to reduce volume of planned operative interventions, and quantity of complications.

**Conclusion:** Thus, endovascular and endoscopy interventions executed at «bleeding height» and after the termination, are safe methods of the hemostasis, which not causing repeated occurrence or bleeding increase. Angiography and endoscopy allows to reveal a source of a proceeding bleeding with the subsequent transformation of a diagnostic stage in medical with use of the same vascular access without an additional trauma and time expenses.

**Iershov D.V., Khmyzov S.O., Rokutov V.S.**

**ERLACHER-BLOUNT DISEASE: A DIFFERENTIAL APPROACH TO THE  
CHOICE OF SURGICAL TECHNIQUE.**

**Sytenko Institute of Spine and joint Pathology, National Academy  
of Medical Science of Ukraine, Kharkiv, Ukraine.**

**Introduction.** Erlacher-Blount disease (EBD) is a relatively rare form of pediatric orthopedic. The disease is characterized by the development of pathological changes in the proximal epiphysis of the tibia and distal femur. EBD manifestes as progressive varus deformity of the knee, which is accompanied by limp, LLD and cosmetic defect. As a consequence functional biomechanical disturbances of the knee joint occur what can lead to early degenerative changes in the knee joint and compensatory deformities of the adjacent



joints. Surgical treatment of EBD consists of corrective osteotomy and fixation using various devices (external fixators, plates). Temporal block of the growth plate (temporary hemiepiphysiodesis) is an alternative treatment option which showed efficacy in the management of pediatric angular knee deformities

**Aim:** To analyze the results of surgical treatment of EBD

**Materials and methods.** From 2010 to 2013 twenty one patients (35 knee joints) with EBD were treated in the Institute. There were 13 boys (61.9%) and 8 girls (38.1%). Average age of patients was 11.5 years (4,5-13 years). All patients underwent the clinical and X-ray examination according to D. Paley method. In our study we used two different surgical methods: corrective osteotomy with fixation using original external fixator and temporary hemiepiphysiodesis. The choice of the surgical treatment option was based on the severity of knee deformity, age of the patient and stage of disease according to Langenskind classification system. In 13 patients (Group 1) with severe EBD corrective osteotomy and fixation using external fixator was performed. In 8 patients (Group 2) with Langenskind II – III stage we performed temporary hemiepiphysiodesis using non-locking plate with two holes. According to the radiographic evaluation in Group 1 mean PreOp parameters were: MPTA - 74 ° (70 ° -80 °) and MAD - 18 mm (13-22 mm). PreOp indices for Group 2 were: MPTA - 81 ° (79 ° -83 °); MAD - 14 mm (12-19 mm).

**Results.** At the follow up examination (after 12 months) 19 patients (90.4 %) showed complete correction of the knee joint deformity. In Group 1 for all patients was performed gradual hypercorrection in external fixator to prevent possible recurrence of varus deformity. In Group 2, the average rate of the deformity correction was 0,8°/ month. In 1 patient from Group 2 we observed slow correction (0,4 ° / month), which was associated with a low rate of growth of the patient during the follow up period. During the analysis of complications we revealed 6 non-significant complications in patients from Group 2 which didn't influence on the results of surgical treatment. There were marked myotonic and pain syndrome during gradual correction in external fixator and 2 patients had pin tract infection which was managed using oral antibiotics

**Conclusions.** 1. Corrective osteotomy and temporary hemiepiphysiodesis are effective surgical methods for angular knee deformity correction in patients with EBD. 2. The main criteria for the choice of treatment option are severity of the deformity, age of the patient and stage due to Langenskind classification system. 3. According to the present study correction of the knee deformity in patients with EBD is associated with a higher incidence of complications in the postoperative period.

**Kasianov B.V., Svirepo P.V.**

**APPLICATION OF INTERVENTIONAL PUNKTIONAL-DRENAGE  
METHOD IN TREATMENT OF ACUTE PANCREATITIS LIQUID  
CONGESTIONS**

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Surgery department № 2**

**Introduction:** now in Ukraine acute pancreatitis (AP) takes the second place in structure of surgical diseases. 15-30% of sick AP becomes complicated the acute liquid congestions (ALC) in the parapancreatic cellulose. 40-70% of this category of patients have their infection. The general lethality at AP of 5-7%. Application of conservative methods



ALC treatment doesn't promote to elimination. Now application of punctional-drainage method in treatment of complications is actual and diskutabel.

**Aim :** assessment of application results in the punctional-drainage method at patients with AP.

**Materials and methods:** the analysis of treatment of 80 sick with AP is carried out to the period from 2007 to 2013. From them was men 50 (62,5%), women 30 (37,5%). Average age of patients made 47,5 ( $\pm 5,7$ ) years. On terms of performance of punctional-drainage method all patients are distributed on two groups: 1 group (main) made 50 patients at whom punctional-drainage method was carried out to the first 2 days after the moment of identification of ALC. 2 (comparative) - 30 patients to whom this medical grant appeared 5-7 days respectively. In the program of inspection of patients was included: the clinical analysis of blood, the clinical analysis of urine, coagulogram, biochemical blood (the general bilirubin, creatinine, urea, glucose, and  $\alpha$ - amylase, lipase), an urine diastase. All patient conducted ultrasonic research belly (ultrasonography), a computer tomography of an abdominal cavity, a fibrogastroduodenoscopy (FGDS). To achievement of full effect applied from 2 to 4 punctures with an interval of 3-4 days with obligatory bacteriological control of the received material. At an inefficiency of a punktsionny method carried out the prolonged drainage. Punctional-drainage method was made both under ultrasonography control, and at a laparoscopy. ALC existence at patients with AP was the indication to performance punctional-drainage method. Weight of a condition of patients was estimated clinically and according to inspection. The received results are processed with application of t criterion of Student.

**Results:** application of punctional-drainage method interventions in 1 group showed reliable reduction of volume of ALC by 72,5% ( $p > 0,05$ ). At 15 (30%) patients one puncture, at 10 (20%) patients – 2 was executed, drainage installation was required from the others 25 (50%) patients. The analysis of bacteriological researches in 1 group showed that at 36 (72%) patients contents were sterile. Bacterial settling was observed at 14 (28%) patients. Thus at 9 (64,2%) from total of patients with the infected contents microorganisms (enterobaktery) in the form of a monoculture are allocated. In others 5 (35,8%) samples associations of microorganisms are found. On concentration of microorganisms in the studied material at 2 patients - to 103 KOE, at 12 patients. Average terms of stay of the patient on a bed made 13,8 days. In the II group application of punctional-drainage method interventions promoted ALC reduction in volume on the average for 42,5% ( $p > 0,05$ ) that can speak about synchronization of inflammatory process. At 10 (33,4%) patients two and more punctures were carried out, drainage was required from the others 20 (66,6%) patients. The analysis of a bak.research of contents of a cavity in the II group showed that extent of bacterial settling and its qualitative contents corresponds bacterial cultural the I groups. The average term of stay of the patient on a bed made 21,3 days.

**Conclusions:** punctional-drainage method in treatment of the acute pancreatitis is an effective method of elimination of ALC. Application of punctional-drainage method operations for ALC elimination in the earliest terms to 48 h is expedient. There is a direct dependence between terms and infectious degree.



**Knigavko A.V. , Sahirov V.S.**

**THE ROLE OF PATHOLOGICAL VENOUS SHUNT IN ERECTILE DYSFUNCTION ASSOCIATED WITH VARICOCELE**

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**Department of Urology , Nephrology and Andrology**

**Introduction:** Erectile dysfunction (ED ) - is an important social problem, the prevalence ranges from 30 % to 54 % of men. Most authors explain the relation between erectile dysfunction and varicocele by low testosterone. However, clinical investigations of patients with ED in conjunction with varicocele in KRCCUN named by V I Shapoval revealed no significant reduction of testosterone in the blood. It makes a closer look at the problem of pathological venous shunt as a cause of erectile dysfunction in varicocele.

**Aim:** To study the role of pathological venous shunt for ED associated with varicocele.

**Materials and Methods :** The study involved 37 patients with ED in conjunction with varicocele. The survey included general clinical methods (survey and inspection, wedge, blood and urine tests) survey using the International Index of Erectile Function (IIEF) ( before and after treatment ), the definition of testosterone T.total and T.free ( before and after treatment ), ultrasound of the scrotum and penis with Doppler color mapping. After the examination, the study included 33 patients. Inclusion criteria were: 1. ED in conjunction with varicocele; 2. Total level > 3.0 ng / ml , T.free 5,5-42,0 pg / ml; 3 . Lack of data flow in inappropriate penile arteries; 4 . The lack of data in favor of neuro-and psychogenic ED.

**Results:** All patients included in the study, performed one-stage correction of venous shunt (by ligation of the dorsal vein of the penis) and surgical treatment of varicocele (Marmar operation) . The treatment has shown efficacy in 93.9% (31 ) patients after 8 weeks (IIEF +5 ± 1 balls).

**Conclusions:** 1. Changes in the level of testosterone in the blood of patients with ED and varicocele was insignificant ( redetermination T.total and T.free shown variations within ± 0,5 ng / ml and ± 1,2 pg / ml). 2 . One-stage surgical treatment of varicocele and ED shows high efficacy in the treatment of these diseases ( 93.9% efficiency ). 3 . The problem of combining ED with varicocele requires closer scrutiny in the light of the data obtained.

**Korobai A., Shevchenko A.**

**IMMUNOLOGICAL MARKERS PREDICTING THE DEVELOPMENT OF ABDOMINAL CAVITY INFLAMMATORY INFILTRATES AND ABSCESS**

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**Department of surgery №1.**

**Introduction.** A purulent inflammatory process is a grounded reaction to the introduction of the infectious agent in the body. One of the manifestations of inflammatory complications after surgical interventions on the organs of abdominal cavity is the formation of bordered inflammatory lesions the infiltrates with subsequent suppuration and formation of intra-abdominal abscesses, which are in recent years, despite the huge possibilities of diagnostics methods and treatment, there is still no a tendency to reduce their number.

**The aim** of the research was to examine the state of cellular and humoral immunity of the patients undergoing surgery for acute surgical diseases of abdominal cavity.



**Materials and methods.** It was studied the cellular and humoral immunity of 86 patients undergoing surgery for acute surgical diseases of abdominal cavity who were divided into two groups corresponding to the postsurgical period course: - the first group (controlling) was consisted of 49 patients resulting with an uncomplicated postsurgical period; - the second group (basic) was consisted of 37 patients who experienced the development of inflammatory complications up to 14 days after surgery. In both groups the first immunological indexes examination was conducted immediately after surgery, the re-analysis was performed on the 7th day of the postsurgical period.

**Results.** The data obtained were interpreted as follows: patients of the first group after the surgery having the certain therapy obtained the stimulation of specific protection what was expressed in the tendency of the studied indices of cellular and humoral immunity back to normal. In the second group of patients there was a progressive decline in cellular immunity with simultaneous increase of leukocytosis in comparison with the appropriate tests in the first group. It is necessary to pay attention to the fact that in the second group of patients in the first study was a decrease of T-lymphocytes and a decreasing tendency in the number of T-active lymphocytes. The combination of these signs was the precursor to the development of inflammatory infiltrates of the abdominal cavity proved by an additional examination of patients.

**Conclusion.** The use of traditional methods of treatment especially antibacterial medicine by the patients suffering from pus inflammatory complications leads to the secondary immunodeficiency formation. The average period of treatment for those patients was 26 + 4 days. All these indexes prove the validity of inclusion in the complex treatment for the patients having the risk of abdominal cavity inflammatory infiltrates to use the immune modulating medicine that will prevent the formation of abscesses. In the risk group should be included the patients with the above characteristics of an emerging immunodeficiency.

**Kwadwo Sarfo Kantanka**  
**EUTHANASIA: SAFEGUARDS AND CONTROL**  
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**Department intensive care and anesthesiology**  
**Mentor: prof. U.Fesenko**

**Introduction.** Euthanasia, the practice of intentionally ending a life in order to relieve pain and suffering is against the laws in many countries, however, it has been legalised in a small number of countries (Netherlands, Belgium, and Switzerland) and the US states of Washington, Oregon, Vermont and Montana. In jurisdictions where it is practiced, laws and safeguards have been put in place to prevent abuse and misuse of these practices. Prevention measures have included, among others, explicit consent by the person requesting euthanasia, mandatory reporting of all cases, administration only by physicians (with the exception of Switzerland), and consultation by a second physician. The issue has been at the centre of very heated debates for many years and is surrounded by religious, ethical and practical considerations. This paper provides a review of the protocol of euthanasia and the application laws and safeguards in carrying out the practice.

**Materials and method.** A desk study and review of published reports.

**Results and conclusion.** Although the initial intent was to limit euthanasia and assisted suicide to a last-resort option for a very small number of terminally ill people, some



jurisdictions now extend the practice to newborns, children, and people with dementia. A terminal illness is no longer a prerequisite. In the Netherlands, euthanasia for anyone over the age of 70 who is “tired of living” is now being considered. Legalizing euthanasia and assisted suicide therefore places many people at risk, affects the values of society over time, and does not provide controls and safeguards.

**Kwadwo Sarfo Kantanka**  
**HELLP SYNDROME: A CASE REPORT AND MANAGEMENT**  
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**Department intensive care and anesthesiology**  
**Mentor: prof. U.Fesenko**

**Introduction.** HELLP syndrome is a life-threatening condition that can potentially complicate pregnancy characterised by hemolysis, elevated liver enzymes and low platelet count. It occurs in 0.1%-0.6% of all pregnancies and in 4%-12% of patients with preeclampsia between week 27 of gestation and delivery, or immediately postpartum with risk factors including: maternal age older than 34 years, multiparity and history of poor pregnancy outcome.

**Materials and method.** This paper presents the case history of HELLP syndrome.

**Results.** The 32-year-old primipara, gravida III, admitted to the hospital at 34-35 weeks of gestation because of nausea, vomiting, abdominal pains for 3 hours and edema for 1 month. The two previous pregnancies ended with spontaneous abortion. The patient delivered a still male fetus at 34-35 weeks of gestation by cesarean section, BM=2200g and height =48 cm. During the operation, complete placenta abruption was found with evacuation of 500 ml of blood from the uterus. During 5 post-operative days, clinical signs of HELLP-syndrome developed: LDG = 6388 U/l, ALT = 5085 U/l, AST = 5049 U/l, platelet count decreased to  $54 \times 10^9/l$ , fibrinogen = 1.2 g/l, INR=1, 78. Blood analysis revealed progressing anaemia (Hb = 44 g/l, Ht=0, 12), leucocytosis (up to  $18 \times 10^9/l$ ), neutrophils – 82%. The total bilirubin was slightly increased (34.9  $\mu\text{mol/l}$ ). Urine output was 150 ml for the 1st night and then increased. Generalized convulsions developed accompanied by anasarca and nasal bleeding. BP increased to 180/100 mmHg with pulse rate 98/min and CVP – 18 cm H<sub>2</sub>O. Ultrasound revealed 110x75 mm infarction in the right lobe of liver and fibrogastroscopy showed multiple stress ulcers. According to the Mississippi classification, the patient had the most severe form class I of HELLP-syndrome. On the 6-th day positive changes in the patient’s state begun: consciousness level improved (she could observe commands), spontaneous respiration restored, but extubation of trachea was impossible due to nasal bleeding. Platelet count and liver enzymes normalized on the 7<sup>th</sup> and 18<sup>th</sup> day of stay at the hospital respectively. Moderate anemia continued for a month. The selective carotid angiography with contrast was performed which revealed the pathological hypervascularization of nasopharyngeal region from the upper maxillary and medial meningeal arteries. The embolization of this structure was done with the goal of stopping nasal bleeding. The treatment included: methylprednisolone; infusion of RBC, FFP, platelets, crystalloids, colloids; diuretics, antihypertensive drugs, sedatives, treatment of stress-ulcers, antibiotics, novo-seven, heparin, vitamins, cerebroprotectors. The administration of steroids in HELLP-syndrome is controversial. Methylprednisolone was used due to very high levels of liver enzymes in plasma. The intensive therapy during the 22



days admission in the ICU prevented the manifestation of DIC, acute renal and hepatic failure. The patient developed neurological complications namely; ischemic stroke in the region of left medial brain artery, sensory-motor aphasia and right-side hemi-paresis. The patient recovered with complete neurological restoration in a month's time.

**Conclusion:** This case demonstrates the critical condition of the patient with HELLPSyndrome and severe complications and that extensive preparation and proper monitoring are necessary for successful management.

**Lopatenko D.E.**

**PATHOGENIC FLORA WITH PNEUMOEMPYEMA AND ITS SENSITIVITY TO ANTIBACTERIAL AGENTS.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Surgery №1**

**Introduction.** Despite significant progress in pulmonology in last time, the problem of medical care for patients with nonspecific acute destruction of the lungs, accompanied by pneumoempyema, is one of the most difficult problems in pulmonology . The urgency of this issues caused by the high mortality, severity and duration. The growing number of patient's young and middle-aged, sometimes socially advantaged and necessitated the search for new approaches to diagnosis and treatment of this disease [Eur. J. Cardiothorac. Surg. - 2004. - Vol.26. - P. 503-507.]. Important place in the development of pathogens pneumoempyema belongs causative agents. The species composition represented by different combinations of strict asporogenous anaerobes with gram-negative aerobic microbiota with the predominance of anaerobic component (Kolesov AP et al , 1985).

**Aim:** To determine the species composition of microflora by pneumoempyema and establish its sensitivity to antibacterial agents.

**Materials and methods:** We examined 109 patients with pneumoempyema. Patients for the study were selected without any specific causes of pneumoempyema (tuberculosis, cancer, etc.). Material for bacteriological examinations was pleural effusion. It was obtained from the pleural cavity in the day of hospitalisation by puncture method. Crops were incubated for 18-20 hours at 37 ° C, determination of the sensitivity to antibiotics produced by disc - diffusion method .

**Results:** In the analysis of the pleural fluid dominated Gram-positive bacteria, among which the most commonly seeded: Streptococcus epidermidis, Streptococcus pneumoniae, Staphylococcus aureus. Second place by the detection rate is occupied gram-negative bacteria, which are dominated Pseudomonada aeruginosa, rarely - Escherichia Coli, Enterobacter spp. In some of the examined patients (10.1%) were identified the pathogenic fungi of the genus Candida. Pathogenic fungi encountered in association with other microorganisms (Staphylococcus aureus, Stretococcus epidermidis, Pseudomonada aeruginosa), and independently. Streptococci showed the greatest sensitivity to third-generation cephalosporins (ceftazidime) antibiotics, fluoroquinolones (gatifloxacin, levofloxacin); staphylococci - a combination of carbapenem and digidropeptidaza inhibitor (thienam), combination of penicillin and  $\beta$  - lactamases inhibitor (klaforan), fluoroquinolones (ciprofloxacin), the causative agent of pulmonary infection P. aeruginosa - a combination of carbapenem and digidropeptidaza inhibitor (thienam) , a combined preparation of third generation cephalosporins and inhibitor of  $\beta$  - lactamases. Candida species were susceptible to amphotericin B, and not sensitive (just 27.3 % of strains) to an



imidazole derivatives. In 10 patients were found *Pseudomonada Aeruginosa* strains with multidrug-resistant.

**Conclusions:** According to de-escalation tactics, before the results of bacteriological tests for initial antibiotic therapy in patients with pneumoempyema can recommend the following antibiotic regimens: 1. Combined drug third generation of cephalosporins and inhibitor of  $\beta$  - lactamases or penicillin combined drug of penicillin and inhibitor  $\beta$  - lactamase + fluoroquinolones (gatifloxacin, levofloxacin) + amphotericin B. 2. combined drug of penicillin and inhibitor  $\beta$  - lactamase + inhibitor drug carbapenem with digidropeptidaz inhibitor + amphotericin B. These combinations are most effective against pathogens, wich we founded by pneumoempyema, more than 96% founded microorganisms are sensitiv to them.

**Musayeva N.**

### **THE AUTONOMIC NERVOUS SYSTEM STATE IN CRITICALLY ILL PATIENTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**The department of Emergence Medicine, Anesthesiology and Intensive Care**

**Mentor – prof. Fesenko U.A.**

**Introduction:** The autonomic nervous system regulates organ functions and homeostasis in human body. There are three types of the autonomic nervous system state according to the prevalence of sympathetic or parasympathetic part: sympathotonic, vagotonic and normotonic. For evaluation of the autonomic nervous system state Kerdo index and skin reaction (dermography) are used. Positive dates of Kerdo index indicates the sympathptonic state and negative – vagotonic. White dermography is seen in sympathicotonic persons and red – in vagotonics.

**The aim** of this investigation was the evaluation of the autonomic nervous system state in critically ill patients using Kerdo index and dermography.

**Matherials and methods:** 36 patients in the intensive care department of Kharkiv Regional Hospital were included in the study: group 1 (n=15) – comatose patients with stroke; group 2 (n=12) – patients with pneumonia, they were sedated for adapting to respirator; group 3 (n=9) – 3 patients with diabetes mellitus and 6 patients with internal bleeding, these 9 patients were in conscious state. Mean age was  $57,1 \pm 2,77$  years. Hemodynamic parameters measured, Kerdo index was calculated and dermography test provided in all patients. All patients have normovolemic state and no one give vasopressor drugs. The results presented as mean  $\pm$  standard error.

**Results:** The mean systolic blood pressure among all patients was–  $127,5 \pm 4,56$  mmHg, diastolic blood pressure –  $75,8 \pm 2,6$  mmHg, pulse rate –  $100,9 \pm 3,1$ /min. Kerdo index among all patients was  $24,1 \pm 2$ , in group 1 –  $20,57 \pm 2$ , in group 2 –  $19,26 \pm 1,7$ , in group 3 –  $36,46 \pm 1,05$ . The dermography in patients of groups 1 and 2 was red, but in group 3 - white. Kerdo index in group 3 significantly higher as in groups 1 and 2, this can be the result of being alert in the specific stressful environment of intensive care unit.

**Conclusion:** The results of our study suggest that there is a significant prevalence of sympathetic nervous system in critically ill patients with different diseases, which may be due to severe illness and emotional stress.



**Orlova T. V.**

### **TREATMENT OF OBSTRUCTIVE SLEEP APNEA USING CPAP THERAPY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** Snoring – is a sound phenomenon accompanying the person's breathing during sleep, and emphasized the distinct sound. Snoring is a precursor of obstructive sleep apnea syndrome (OSAS). OSA - is a clinical disorder characterized by pauses in breathing duration more than 10 seconds with a frequency of more than 15 per hour, usually accompanied by loud snoring. It can cause severe problems such as cardiovascular, cerebrovascular diseases etc.

**Materials and methods:** The method of continuous positive airway pressure (CPAP) is being distributed throughout the world. This method is based on "inflation" the airways during sleep, and uses mild air pressure to keep an airway open. It prevents them from sagging and removes the underlying mechanism of the disease.

**Results** of the research: Using long-term CPAP therapy, it was found out the dependence of effect on the severity, age and sex of patients. Depending on the severity efficiency of OSA CPAP therapy was 8.2 % with a mild degree of 29.2 % at an average, 59.8 % for severe. Long-term acceptability among working men aged  $\geq 40$  years is 52.0 %; among working men  $< 40$  years - 39.3 %; pensioners men - 23.7%; women aged  $\geq 55$  years - 14.3%; in women aged  $< 55$  years - 12.5%.

**Conclusion:** CPAP provides a normal sleep, improved quality of life and prevents complications (sleep disorders, increased cardiovascular disease, pulmonary hypertension, etc).

**Osovsky I., Butova E., Palval A.**

### **THE EFFECT OF PREINFUSION VOLUME ON HEMODYNAMIC PARAMETERS AND VASOPRESSOR NEED DURING SPINAL ANESTHESIA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**The department of Emergency Medicine, Anesthesiology and Intensive Care.**

**The mentor – Prof. U. Fesenko**

**Introduction:** The Renaissance of regional anesthesia in XXI century involves all population of patients and many fields of surgery. Regional anesthesia has a variety of advantages as compared to general anesthesia. Spinal anesthesia is the most convenient and cheapest method of regional anesthesia. However, there are some problems during spinal anesthesia, such as arterial hypotension due to sympathetic block. Infusion volume and vasopressors are main ways to maintain hemodynamic parameters during spinal anesthesia.

**The purpose** of this study was to determine the effect of preinfusion volume on hemodynamic parameters and vasopressor need during spinal anesthesia intraoperatively.

**Materials and Methods:** 18 patients underwent elective surgery under spinal anesthesia at the Kharkiv Regional Hospital were included in the study. Hemodynamic parameters were determined by monitor "UTAS": blood pressure systolic (BPs), diastolic (BPd) and medium (BPM), pulse rate (PR). Statistical methods: average (M), standard deviation ( $\sigma$ ), standard error (m), minimum and maximum values, the correlation coefficient (r). The results are given as  $M \pm m$ .

**Results:** Mean age was  $54,6 \pm 2,7$  years, body weight:  $84 \pm 4,9$  kg, height:  $170 \pm 2,9$  cm. Volume of preinfusion before performing spinal anesthesia averaged  $1183 \pm 123$  ml of crystalloid, only in one patient 500 ml hydroxyethylstarch was used. The maximum value



of BPs was  $138 \pm 2,8$  mm Hg, and this parameter had a moderate positive correlation ( $r = 0,47$ ) with preinfusion volume. The minimum value of BPs during surgery was  $124 \pm 2,9$  mm Hg, and it had a mild positive correlation ( $r = 0,31$ ) with preinfusion volume. BPd maximum value was  $91 \pm 2,5$  mm Hg, and this parameter had no correlation ( $r = 0,19$ ) with preinfusion volume. Minimum value BPd during surgery was  $78 \pm 2,8$  mm Hg, and it also was not correlated ( $r = 0,01$ ) with preinfusion volume. BPm averaged  $107 \pm 2,4$  mm Hg, and had a mild positive correlation with the volume of preinfusion ( $r = 0,31$ ). PR value of the sample average during surgery was  $76 \pm 2,2$  per minute, and there was no correlation between heart rate and volume of preinfusion ( $r = 0,05$ ). Need in vasopressor mesatone to maintain hemodynamics during operation averaged  $1,0 \pm 0,4$  mg, and this figure did not have a correlation with the volume of preinfusion ( $r = 0,06$ ).

**Conclusion:** Volume of preinfusion before spinal anesthesia for elective surgery affects on the level of systolic blood pressure during surgery.

**Palchik S. M.**

**RADIATION DIFFERENTIAL DIAGNOSIS OF MULTIPLE MYELOMA AND HORMONAL SPONDYLOPATHIES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Radiology and Radiation Medicine**

**Mentor: Prof. Dr. Pylypenko M.I.**

**Introduction.** Multiple myeloma is a malignant lymphoproliferative disease in which bone marrow is settled in a clone of plasma cells. Myeloma cells produce a factor that activates osteoclasts. The consequence is a focal bone defects or diffuse osteoporosis, pathological fractures, bone pain. Multiple myeloma is 1% of all cancers and 10% of leukemia. In the primary treatment of patients on complaints of pain in different parts of the spine according to the radiographic examination is necessary to differentiate focal and diffuse forms of multiple myeloma from hormonal spondylopathies manifested by diffuse osteoporosis, pathologic fractures. Differential diagnosis is difficult because of nonspecific early clinical manifestations of these diseases, as well as the similarity of X-ray pictures, manifested by diffuse or focal loss of bone structure.

**Aim.** Improving early diagnosis of multiple myeloma using complex X-ray and laboratory techniques.

**Materials and methods.** The sample of 42 people, including 21 patients with multiple myeloma, 21 with hormonal spondylopathies. Clinical manifestations of these diseases are nonspecific. This is a pain in various parts of the spine (100%), often in the lumbar region (60 - 70%), the pelvis (40%) and ribs (45%), radicular syndrome (60%). Patients with such complaints were examined by X-ray of the spinal column (100%), the skull, ribs, pelvis (70%), by bone scan (40%), CT (23.5%) and MRI (9.3%). In addition, a complete blood count were performed (100%), clinical analysis of urine (75%), blood chemistry: determined by total protein and serum protein spectrum (60%), the calcium content in serum (85%).

**Results.** Osteoporosis is diagnosed by of bones of all 42 patients (100%). Multiple myeloma was diagnosed in 21 patients. X-ray examination of these patients revealed osteoporosis except spine and other bones of the skeleton: the bones of the skull in 80% of cases, edges at 100%, in the pelvis in 60%. Solitary form of one vertebra osteoporosis, verified using trepanobiopsy, was detected in 2 patients (9.5%). In these patients, except



predominantly diffuse osteoporosis observed changes in laboratory tests: accelerated ESR > 60 mm / h, increase the level of total protein in excess of 100 g / l and the albumin - globulin inversion. One of the main criteria for diagnosis and verification of multiple myeloma was to identify plasma cells in the bone marrow (23,8%) and the presence in urine Bence-Jones protein (60%). Changing the vertebrae in patients with hormone spondylopathies manifested mainly by diffuse osteoporosis (100%) , pathologic changes in their form as biconcave lens, the so-called "fish vertebrae" (50%) and the extension of the intervertebral spaces in the form of a biconvex lens (45%).

**Conclusions.** Peculiar manifestation of diffuse forms of multiple myeloma is osteoporosis, detected with radiography. Focal type of the disease is manifested by destruction of bone round or oval, with sharply contours. Pathognomonic signs of multiple lesions are flat bones and pathological fractures of the ribs. In the skull usually large perforated hearth osteolytic destruction.

**Pashchenko K., Kiroshka K.**

### **THE WAYS TO IMPROVE THE INTEGRITY OF INTESTINAL ANASTOMOSES IN NEONATES AND INFANTS.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The restoring of intestinal continuity in newborns and infants is one of the most difficult problems in modern pediatric surgery. Formation of reliable intestinal anastomosis (IA) with severe diameter discrepancy of adducent and defferent loop is of paramount importance for the correction of congenital intestinal obstruction and intestinal stomas rehabilitation. The frequency of intestinal sutures failure (ISF) when connecting functioning and non-functioning bowel is high and reaches 32%.

**Materials and methods.** The surgical treatment experience of 178 children aged from 1 day to 3 years with congenital and acquired intestinal diseases was analyzed. The patients were operated in the Kharkiv Regional Children's Hospital №1 in 2004-2014. The experimental study of fetal rat liver stem cells (SC) effecting intestinal wound healing was carried out. The SC suspension was administered in isolated caul patch to cover the intestinal suture line.

**Results.** The preference was given to the IA covered with the afferent demucosated flap to restore the intestinal passage with severe imbalance of adducent and defferent segments. The anastomosis has high biological and mechanical integrity, heals well and reduces the incidence of postoperative complications. The demucosated flap saves regenerative capabilities, does not constricts and grows due to the physiological intestinal loop size. No cases of ISF, IA stenosis were observed. The ISF noted in 4 cases, IA stenosis in 2 cases with the conventional method of IA in the control group. During the experiment with injection of SC in the insulated caul patch to protect the suture line early demarcation of necrosis was noted in the wound area with a predominance of productive inflammation and reduction of the exudative phase. During delimitation stronger angiogenesis was made in connective tissue layers. The germination of residual necrotic adipose tissue inside the intestinal wall layer was observed. In the final stage it was almost complete recovery of a residual connective tissue.

**Conclusions.** The developed method of IA is highly effective to prevent ISF in neonates and infants with severe diameter discrepancy of adducent and defferent loop. Using of SC increases biological strength of IA, not directly affecting the term of wound healing.



The demucosated flap can be also used as a matrix for application of cryopreserved SC during the surgery of prenatally diagnosed intestinal atresia. These factors determine the necessity of the chosen methods to improve the integrity of intestinal anastomoses in neonates and infants.

**Petiunin P., Yevtushenko O.**

**RISK FACTORS OF A POSTOPERATIVE HEPATIC FAILURE AT SURGICAL TREATMENT OF LIVER CIRRHOTIC PATIENTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of General surgery №2**

**Introduction.** The most dangerous complication of surgical treatment in patients with liver cirrhosis is a hepatic failure, which is a most common reason of their death in early postoperative period.

**The aim** of this study is to improve the results of surgical treatment in patients with liver cirrhosis based on the determination of risk factors and prognosis of hepatic failure at choice of surgical treatment method.

**Materials and methods.** We included 137 patients with liver cirrhosis, at whom surgical treatment was performed. In 81(59,12%) cases was performed the distal splenorenal shunt by Warren, in 56(40,88%) – devascularization surgery. Clinical and biochemical blood examinations, morphological examinations with morphometry of intraoperative liver biopsies by V.Sypliyviy method, doppler ultrasound of portal blood vessels at admission by Moriyasu et al. method were done. The statistical analysis was performed by use of “Microsoft Excel 2000” and “SPSS 10.0 for Windows”. **Results.** It was established, that hepatic failure occurred in 33,57% patients with liver cirrhosis and was a reason of their death in 18,97% cases. The highest risk of its occurrence (33,9%) is after shunting operations, at presence of ascities (47,16%), combination of ascities and hemorrhage from esophageal and gastric variceal veins (90%). Hepatic failure is accompanied by hypoproteinemia, hypoalbuminemia, hyperfibrinogenemia, increased concentration of bilirubin, urea, creatinine, hyperactivity of the asparagineaminotransferase, alaninaminotransferase, alkalain phosphatase, increase of anemia, leucocytosis, lymphopenia. Morphological changes in liver at liver cirrhosis reflects it's functional reserves, and risk of the hepatic failure is different for morphological types of cirrhosis – in case of A-type hepatic failure didn't occurred, in case of B-type - in 34 (52,3%) patients, in case of C-type - in 19 (79,16%) patients. Decrease of the general hepatic blood flow, linear portal velocity, increase in diameter of portal and splenic veins with portal congestion index indicates were diagnosed in patients with postoperative hepatic failure. At Child-Turcotte-Pugh scoring hepatic failure occurred in 33 (34,7%) class A patients and 33 (78,58%) class B patients.

**Conclusion.** The highest risk of a hepatic failure is after shunting operations, at presence of ascities, combination of ascities and hemorrhage from esophageal and gastric variceal veins. Preoperative increase in general bilirubin, urea, creatinine, asparagineaminotransferase to alaninaminotransferase ratio indicates high risk of a postoperative hepatic failure. Morphological changes in liver at cirrhosis reflects it's functional reserves, risk of the hepatic failure is on the highest level in case of a C- type cirrhosis. The Child-Turcotte-Pugh score may be used for the complex prognosis of the



hepatic failure in patients with liver cirrhosis and choice of treatment tactics. Patients with portal vein diameter more than 1,5 cm, linear portal blood velocity less than 10,8cm/sec, portal congestion index more than 0,14 cmxsec are in risk of a hepatic failure.

**Robak V. I., Ievtushenko D.V., Byzov D.V.**

### **NECROTIZING PANCREATITIS: THE ANALYZE OF MORTALITY FACTORS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of general surgery №2**

**Introduction:** Severe acute pancreatitis remains one of the most difficult diseases in diagnostic and treatment. The timely prognosis of course of acute pancreatitis allows correctly choosing tactics of treatment, warning development of complications.

**Aim:** to conduct the analyze of surgical treatment of patients with acute necrotizing pancreatitis and to identify parameters, which reflect the high risk of an unfavorable course of the disease

**Material and methods:** There is an analysis of surgical treatment of 125 patients with severe acute pancreatitis. In postoperative period 34 (27,2%) patients died. The analysis of clinical characteristics of patients with acute pancreatitis with the isolation of a group of patients who died in the hospital from complications of pancreatic necrosis was done.

**Results:** The average age of the deceased was (60,5±3,56) years. In comparison with the average age of the survived patients (47,75±1,89) years. The differences are statistically significant at the level of  $p < 0.05$ . Analysis of mortality by gender showed that among those women who survived were 31 (68,89 %), dead - 14 (31.11 %), among men those who survived - 60 (75 %), dead - 20 (25 %) ( $p > 0.05$ ). Infected necrosis revealed at 80 (64,0%) patients. Sterile necrosis revealed at 45 (36,0%) patients. In the group of died infected necrosis revealed at 30 (88,2%) patients, sterile necrosis revealed at 4 (11,8%) patients. Parapancreatic fat injury revealed at 80 (64,0%) patients. At 26 (76,5%) patients from 34 died parapancreatic fat injury revealed. Thus infected pancreatic necrosis increase lethality risk in 37,5%, parapancreatic fat injury increase lethality risk in 32,5%. With chronic comorbidity in 63 (50,4%) patients revealed cardiovascular pathology 49 (38,0%) - gallstone disease. Liver disease diagnosed in 17 (13,18%) patients; chronic gastric ulcer and 12 duodenal ulcer - in 13 (10,08%) patients. Obesity II-IV degree detected in 6 (4,8%); cachexia - in 4 (3,2%) patients. 7 (5,43%) cases comorbidity was alcoholism; 7 (5,43%) cases of renal pathology; 7 (5,43%) cases - diabetes. Pathology of the respiratory system detected in 4 (3,2%) patients; 2 (1,55%) patients had malignant neoplasms; 1 (0,8%) patient suffered from syphilis. In the analysis of comorbidity deceased has been revealed that among patients with cachexia, obesity and alcoholism, the mortality rate was 100%. Among patients with chronic liver disease and kidney disease mortality rate was 54,2%, among patients with pathology of the cardiovascular system 47,6% ( $p < 0.05$ ).

**Conclusion:** 1. Postoperative mortality from complications of acute necrotizing pancreatitis is 27,2%. However infected pancreonecrosis and parapancreatic fat injury revealed at 64% of patients with acute necrotizing pancreatitis. 2. High risk of developing post-operative complications in patients with severe acute pancreatitis is caused by the nature of the injury of the pancreas and retroperitoneal fat, age, alcoholic etiology of the disease, presents of disorders of body weight, diseases of liver, kidneys, cardiovascular system.



**Rudikova V.V., Zinchenko A.A.**  
**MORPHOLOGICAL PATTERN OF FLEXOR DIGITORUM TENDONS ON**  
**APPLICATION OF VARIOUS TENDON SUTURES**

**Research advisor: Opryshchenko A.A., CandMedSci**

**DonNMY of M. Gorky**

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**Ukraine**

**Introduction.** According to literature reviews a number of patients with fingers' tendons damages amounts 7-18% of all hand injuries. One of the reasons of unsatisfactory results of treatment is absence of universal way of tendon restoration. We developed and suggested tendon suture (Gov. useful model patent of Ukraine №57350), that as we think meets modern requirements being simple for suturing and nontraumatic.

**The aim** of the research: to study experimentally morphological changes of tendon tissues in the sutured area after reconstructive operations using various methods.

**Materials and methods:** experimental studies were carried out on the basis of Donetsk regional antitumoral center's vivarium. Three research series on rabbits were conducted. Operations were performed in aseptic conditions of operation room, under anaesthesia, following all the rules of humane treatment of animals. 30 operations on Achilles' tendon were conducted: 10 using Cuneo's sutures, 10 using Kazakov's sutures and 10 using our own method. On completion of experiment on the 21<sup>st</sup>, 40<sup>th</sup> and 60<sup>th</sup> day tendons in the sutured area were dissected, fixed in 10% formalin solution in phosphate buffer. Material was used for preparations 5±1 microns thick, stained with hematoxylin and eosin using van Gieson's method. The received values of morphometric indices were statistically processed using standard licensed software package "Office Professional 97" of Microsoft Corporation.

**Results:** on the 21<sup>st</sup> day focal leucocytes' accumulations in peritendineum and compact arrangement of fibrocytes' nuclei between the bundles of first-order collagen fibers were observed when studying bioptic samples after the use of traditional methods. The thickness of collagen fibers decreased significantly compared with the preserved bundles of the tendon. In 40 days neogenic collagen bundles differed in thickness and had various direction that interrupted normal architectonics of tendon. On the 60<sup>th</sup> day cicatrix in the sutured area was presented with loose connective tissue unlike dense connective tissue of unchanged tendon. The use of authoring method was accompanied on the 21<sup>st</sup> day after the operation by forming of dense connective tissue that was practically identical with those of undamaged tendon. The tissue in the sutured area had architectonics same with normal tendon. From 40<sup>th</sup> day and further the thickness of collagen bundles grew, their destination did not differ from normal connective tissue, normal architectonics of the organ.

**Conclusions:** the morphological presentation of fibrillogenesis in the area of tendon suture differs significantly when using common and authoring methods. The advantages of the latter manifest through restoration of tendon dense connective tissue architectonics, prevention of neogenic collagen fibrous bundles' desorganisation and preservation of biosynthetic function of fibroblasts, that provide formation of new fibrous bundles. That helped to achieve high efficiency when treating the patients with this trauma.



**Vander K., Malyshevska A., Lyubomudrova E., Pavlova O., Berezhnoy B., Tertyshny V.**  
**TWO-STEP RESECTIONS OF THE SMALL INTESTINE IN EMERGENCY SURGERY**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Surgery №3**

**Introduction.** The failure of entero-enteroanastomoses is one of the main causes of adverse outcomes after resection of the small intestine in patients with acute intestinal obstruction complicated by diffuse peritonitis. This complication can lead to development of postoperative peritonitis and intestinal fistulas in 30-40% and in 40-60% can cause a death. Two-stage surgical treatment is one of the preventive methods of one. Nevertheless indications to such approach and terms of performing the second step are still discussing.

**Aim.** To clarify the indications for the two-stage resection of the small intestine in patients with acute intestinal obstruction complicated by diffuse peritonitis.

**Materials and methods.** Retrospective analysis of treatment outcomes of 21 patients aged 31 to 73 years. There were 14 men and 7 women with acute intestinal obstruction complicated by diffuse peritonitis. All the patients were undergone by intestinal stomas forming during a surgery. Causes of the intestinal necrosis were strangulated hernias (n=8), acute adhesive intestinal obstruction (n=9), intestinal volvulus (n=4). Patients were admitted to the hospital after 24 hours. All the patients with strangulated hernias had the phlegmon of a hernial sac.

**Results.** Patients were operated not later than 3 hours after admission to the hospital. Diffuse serous peritonitis was diagnosed in 15 patients, purulent peritonitis – in 6 cases. Ostomy was performed in all the patients after resection of the small intestine: in 5 patients (41.3%) a single-loop and in 16 (4.0%) a double-loop ileostomas. The main indications for two-stage resection of the small intestine were: prolonged inflammatory infiltration with thickening of the small intestinal wall and significant increase of the small intestinal loop diameter. Additional indications were: increased risk of thromboembolic complications in postoperative period, endotoxic or hypovolemic shock before surgery. Second step of surgery was performed on 3-5 day. In cases of single-loop ileostomas there were needed laparotomy to choose the place of enterostomy. Closing of double-loop ileostomas was performed by mini-invasive approaches. Postoperative wound suppuration was in 6 patients, eventeration – in 2 cases, pneumonia – in 1 patient.

**Conclusions:** Two-stage resection of the small intestine is the method of choice to reduce the risk of complications and death of the patient in cases of acute intestinal obstruction complicated by diffuse peritonitis.

**Yevtushenko D.A., Dumachev D.V., Bilenko I.A.**

**A METHOD OF PREVENTING THE DEVELOPMENT OF ADHESIONS IN PATIENTS OPERATED ON THE ABDOMINAL CAVITY ORGANS.**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of the surgery №1.**

**Introduction.** Adhesive disease is a concept used to refer to pathological conditions associated with the formation of adhesions in the abdominal cavity in a number of diseases: traumatic injuries of internal organs, including operative trauma. Postoperative adhesions have negative influence on health in four ways: adhesions cause diseases, including bowel obstruction, infertility and pelvic pain; adhesions are associated with numerous surgical



complications, which are leading to the large surgical load, high level of hospitalization and other health problems; all the negative effects result in significant economic costs.

**Aim.** The prevention of the peritoneal adhesive disease in patients operated on the abdominal cavity organs and studying parameters of cell-mediated immunity in studied groups.

**Material and methods.** The using of the barrier materials to isolate the wound surface of the abdominal cavity from the peritoneum allows regeneration of injured peritoneum, thereby reducing the risk of adhesions. For this purpose we have developed a method of separating colonic anastomosis zone after resection of colon tumor (Ukrainian patent number 59425) and introduced it in the 20 operations. After resection of a tumor-segment of colon we imposed the hardware circular anastomosis using plate Tachocomb and further covered the anastomosis by the plate Tachocomb. We have analyzed the different clusters of differentiation expression on the membranes of lymphocytes. Significant differences in the parameters of cell-mediated immunity were revealed in studied groups.

**Results.** Were founded that in patients with abdominal pathology operated using improved techniques and who received drugs that prevent the development of adhesions in the early postoperative period, the content of major subpopulations of T-lymphocytes did not differ significantly from the reference values, was noted a slight increase in expression of the marker CD3 +, as well as somewhat decreased expression of the cluster of differentiation CD54 +, the molecule of adhesion. In cell-mediated immunity in the comparison group the significant decrease in the expression of the clusters of differentiation CD3 +, CD4 +, CD8 +, CD16 + (natural killer NK), CD19 +, CD25 + was observed, average of 1.5 - 2 times relative to the main group. Also in this group the increase of the percentage of cells which expressed a differentiation marker of CD95 + and HLA-DR + was observed.

**Conclusion.** By the development of the anastomosis formation procedure we achieved the improvement in mechanical strength, biological integrity of anastomosis and isolation of the anastomosis zone from parietal peritoneum, which reduces the risk of adhesions in the abdominal cavity. Among 20 patients who were operated using our methodology of imposition of the colon anastomosis in the State institution 'Zaycev V.T. institute of general and urgent surgery of National academy of medical sciences of Ukraine' we have revealed no complications in the early and late postoperative periods during the observation time.

**Yevtushenko D.A.**

## **THE RESULTS OF TREATMENT OF ACUTE ADHESIVE INTESTINAL OBSTRUCTION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of the surgery №1.**

**Introduction.** One of the leading problems of practical surgery nowadays is the prevention of adhesions. The number of patients with acute adhesive intestinal obstruction (AAIO) is 3.5 % of the total number of surgical patients in the hospital. So there are no standard approaches to treatment AAIO.

**Aim.** Examination of the outcome in patients with AAIO in the long term, depending on the amount of vistserolisis.



**Materials and methods.** AAIO operated on 92 patients, including 58 men and 34 women. 24.3 % of patients were first hospitalized for AAIO in the second time - 23.8 % and 51.9 % - patients were hospitalized for AAIO for more than two times. In 38 (41.3 %) patients with a history of more than 1 laparotomy. Assessments of prognosis of adhesions appearance were carried out on the basis of determining the concentration of oxyproline in urine.

**Results.** Surgical treatment was performed in cases of failure of conservative therapy. The following types of surgery AAIO were involved in the study: total visterolysis performed 52 (56.5%) patients, in 29 (31.6 %) patients the partial visterolysis was performed, 11 ( 11.9 % ) patients additionally imposed bypass adhesions conglomerates intestinal anastomosis in connection with the impossibility of separation of adhesions conglomerate. The detection of abdominal adhesions and expressed conglomerate inflamed and infiltrated the intestinal loops localized at the level of middle parts of the small intestine total visterolysis was impossible to fulfill . Therefore, after local visterolysis the small intestine over a 1 m from the ligament Treys mobilized portion of the small intestine above the infiltration by 15cm. Isolated on colon transverses gut area 4cm and imposed eyunotransverses anastomosis side -to-side at the tenia libera using a linear stapler, so that the small intestine is along the axis of the colon transverses intestine. The small intestine anastomosis was intubated to transnasal probe. After intubation, bowel anastomosis zone additionally harbor plate Tachocomb nodal Vicryl sutures to isolate it from the peritoneum (Pat. Ukraine number 76766 ). Long-term results of treatment of patients AAIO analyzed in terms of up to 5 years. In the late postoperative period AAIO recurrence occurred in 18 (19.6 %) patients, conservative actions AAIO was resolved in 11 (11.9 %) patients, 7 operated (7.6 %) in connection with re AAIO. AAIO relapse within the first year after the first surgery was observed in 10 (10.9 %) patients, in the second year - in 5 patients (5.4%), during the period of 3 to 5 years - in 3 (3.3%). In 54 patients with stage I and II class incidence of adhesions total visterolysis was performed. Local visterolysis used in Article III and IV incidence of adhesions, 13 patients additionally imposed bypass adhesions conglomerates intestinal anastomosis due to the impossibility of separation of adhesions conglomerate. Remote postoperative period was complicated AAIO in 9 (9.8%) patients. In the study of oxyproline excretion in urine - a primary token that displays the catabolism of collagen - the increase in the concentrations found this figure to  $40,4 \pm 3,23$  mg / day. The main group of patients against the use of this method visterolysis local concentration of oxyproline in the daily urine was also superior and consistent  $15,3 \pm 1,22$  mg/day with a reference value  $8,2 \pm 0,57$  mg/day, which indicates that a smaller intensity collagen catabolism.

**Conclusions.** So, the adhesion process is localized in the area of surgery. In 19.6 % of patients had recurrence AAIO after urgent surgery due to AAIO. Positive result in the conservative treatment AAIO doesn't give assurance that there is no threat of recurrence AAIO. The main reason for the unsatisfactory results of surgical treatment is the recurrence of adhesive disease of the peritoneum. Improved results of treatment of patients in this group is the one hand to reduce the trauma of surgery, i.e. to give preference to local visterolysis and respect to tissues, as appropriate overlay bypass adhesions conglomerates intestinal anastomosis and to prevent the use of adhesion of the barrier means, which is confirmed at intensity catabolism of collagen, confirming increased concentration in the daily urine oxyproline also to  $15,3 \pm 1,22$  mg/day.



## OBSTETRICS AND GYNECOLOGY

**Ahmed Hafedh Alkubaise, Ahmed Sadeq Ajeel**

### **STATE OF REPRODUCTIVE FUNCTION FOR PATIENTS WITH POLYCYSTIC OVARIES SYNDROME ON BACKGROUND OF OBESITY**

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**Department of Obstetrics and Gynecology N1**

**Introduction.** Polycystic ovaries syndrome (POS) — one of the most frequent forms of endocrinopathies, elemental by leading reason of hyperandrogenism and anovulatory sterility. Most authors mark that for a syndrome abdominal obesity is characteristic.

**Aim:** to study the characteristics states of the reproductive system of patients with POS and different types of obesity.

**Material and methods.** An analysis is conducted 82 hospital of women charts with obesity (index of mass of body  $>30$  kg/of  $m^2$ ). Depending on the type of distribution of hypodermic fat of women distributed on two groups: 1th - with gluteofemoral (38) and 2th - with the abdominal (44) type of obesity. The features of gynaecological and reproductive anamnesis were studied. At each second patients with the gluteofemoral type of distribution of fat mass of body began to increase during the genital ripening, while among women with abdominal obesity such it was for certain less than (30,40 %). Middle age of patients with POS was 27 and 26 year according to groups. The inspected women for certain did not differentiate on social status, education and place of inhabitation. Age of menarche in both groups was identical and 12,5 made year. In the process of pubescence as far as forming of hormonal activity of the reproductive system for a girl-teenager menarche appears at first, after menarche. The most frequent type of violation of cycle was an oligomenorrhea, thus for women with abdominal obesity she was registered for certain rarer, than at gluteofemoral (76,8 and 88,89 % accordingly).

**Results.** At gluteofemoral obesity more frequent there were an oligomenorrhea or dysfunctional fallopian bleeding, more frequent on the type of menometrorrhagia. A hysteromyoma (6 %), mastopathy (14 %) and hyperplasia of endometrium (22 %), came to light for patients. At the abdominal type of lipopexia more frequent there was amenorrhea, dysfunctional fallopian bleeding on the type of imperforation of follicle and persistence of yellow body. Analysis of reproductive anamnesis of indication, that the most inspected women had sterility in anamnesis (83,33 and 86,40 % according to groups), thus frequently it was primary (67,78 and 74,44 %). Approximately at the half of patients pregnancies came with POS, while the every third had each only. Thus, the conducted research did not educe distinctions in reproductive anamnesis for women with POS and different types of obesity. They also do not differentiate on frequency of inflammatory diseases of pelvic organs and pathology of neck of uterus. At the same time there are reliable distinctions in gynecology anamnesis by the nature to the menstrual function and frequency of endocrinological pathology depending on the type of distribution of fat. At gluteofemoralis obesity an oligomenorrhea or dysfunctional fallopian bleeding was more frequent registered, more frequent on the type of menometrorrhagia. A hysteromyoma (6 %), mastopathy (14 %) and hyperplasia of endometrium (22 %), came to light for patients. At the abdominal type of



lipopexia more frequent there was amenorrhea, dysfunctional fallopian bleeding on the type of imperforation of follicle and persistence of yellow body.

**Conclusions.** The found out distinctions in anamnesis between patient with POS and different forms of obesity talk about the presence of features of flowing of syndrome for current patients, that requires a further study with the purpose of development of the individualized going near their treatment and prophylaxis of diseases.

**Aliyeva Pervana Asef Kizi**

**THE DEPENDENCE OF THE INDICATORS OF CYTOKINES FROM THE LEVEL OF NEUROSPECIFIC PROTEINS IN PREGNANT WOMEN WITH PREECLAMPSIA**

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Department of Obstetrics and Gynecology №1**

**Introduction.** According to statistics, preeclampsia is diagnosed in 18-22% of pregnant women, in specialized hospitals at high risk of its frequency reaches 28-30%.

**The purpose** of this study was to determine the dependence of indicators of cytokines from the level of neurospecific proteins in the blood of pregnant women with preeclampsia.

**Material and methods.** Surveyed 60 pregnant women in terms of 30-40 weeks. The I (first) group consisted of 15 (25%) women with physiological pregnancy (control group). The II-a (second-a) group included 20 (33.3%) pregnant women with mild preeclampsia. The II-b (second-b) group consisted of 15 (25%) pregnant women with preeclampsia moderate severity. The II-c (second-c) group consisted of 10 (16.7%) pregnant women with severe preeclampsia. Levels of neurospecific enolase, interleukin - 1 (IL - 1), interleukin - 2 (IL -2), interleukin - 10 (IL -10), tumor necrosis factor (TNF) was defined in blood of pregnant woman.

**Results.** In the result of the survey it was found that when mild preeclampsia average level of neurospecific enolase in the blood of almost 2 times above, than at physiological pregnancy, the level of IL - 1 increased in 1.3 times the level of IL -2 has increased in 1.5, the number of TNF - 2 increased 4.7, and IL -10 level has slightly decreased.

**Conclusions.** On the basis of carried out research we found that by increasing the level neurospecific enolase in the mother's blood runs immune system aggression increased level of proinflammatory cytokines (IL-1, IL-2, TNF- $\alpha$ ) and reduces the of anti - inflammatory interleukins (IL-10).

**Aminullah Mohammad Osman**

**USING OF SONOGRAPHY IN THE EVALUATION OF THE EFFECTIVENESS OF ELECTROSURGICAL TREATMENT ENDOMETRIAL HYPERPLASIA**

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Department of obstetrics and gynecology №1**

**Introduction:** Hyperplastic processes in the endometrium as a possible basis for the formation of endometrial cancer represent an important medical and social problem. The part of endometrial malignancy of precancer ranges from 5% to 15%. In order to reduce this index timely diagnosis and treatment of background and precancerous diseases of the endometrium are needed. Endometrial ablation has been applied as an alternative method for the ineffectiveness of conservative therapy and contraindications to surgery. This



minimally invasive surgery is a fundamentally new type of treatment organ-sparing hyperplastic processes. Important is the question of evaluating the effectiveness of endometrial ablation in different periods of the postoperative period.

**Aim:** to determine the significance of the use of ultrasound of the pelvic organs in evaluating electrosurgical endometrial ablation.

**Material and methods:** In 35 patients for recurrent endometrial hyperplasia and inefficiency hormone was produced electrosurgical endometrial ablation. The average age of patients was 51.1 years. Ultrasound monitoring was carried out using an ultrasonic apparatus «ALOKO SSD- 630 " (Japan). This study was conducted in all patients at admission and at 1, 3, 6, 7, 9, 12, 32 and 45 days after electrosurgical endometrial ablation.

**Results:** After the electro- surgical treatment in the early stages of ultrasound surveillance ( 1- 7th day) exceeds the initial size of the uterus is 5-7 mm. Thickness M-echo in this period amounted to an average of 10 mm, the boundary between the endometrium and myometrium was fuzzy, heterogeneity remained M-echo. Almost all the patients in the first day after surgery was noted that there hyperechogenic rim thickness of 2-3 mm around the periphery of the uterine cavity, most likely, this region corresponded to the zone of coagulation necrosis. During this period, it was also noted the presence of free fluid in the posterior fornix. The majority of patients free fluid from the posterior arch disappeared on the 7th day after surgery, and in patients with a history of chronic inflammatory processes in the pelvis, - on the 12th day. On the 7th day was a decrease in size of the uterus until the source. The boundaries between the projection of the endometrium and myometrium were becoming more apparent. When examining patients on the 12th day border between the endometrium and myometrium were distinct, the median M-echo - a homogeneous, more echogenic, to 4 mm thick . By the 30th day from the essential dynamics of the pelvic organs in echoscopic monitoring was not observed. During the monitoring period the structure and size of the ovaries in women of reproductive age have not changed, the other two ovaries are not visualized . On the 45th day all women with pelvic ultrasound pathology was identified. M-echo appeared homogenous , avascular, 2-4 mm thick.

**Conclusions:** A dynamic ultrasonic testing in patients after electrosurgical endometrial ablation provides an affordable and non-invasive assessment of the course of the early postoperative period, when the use of other methods is not possible.

**Amoh Christin**

### **ECTOPIC PREGNANCY: ARE FAIR-COLORED WOMEN AT INCREASED RISK?**

**Kharkiv national medical university, Kharkiv, Ukraine  
Department of Obstetrics and Gynecology №1**

**Introduction:** Ectopic pregnancies (EP) implant outside the endometrial cavity. They complicate 1.5-2.0% of pregnancies and are potentially fatal. It commonly occurs in the fallopian tube and other sites such as the cervix, the ovary and the abdominal cavity. Risk factors for EP include damage to the fallopian tubes from previous pelvic inflammatory disease, tubal surgery and a previous EP, a history of cigarette smoking, age over 35 years and others. In Ghana the incidence of EP is between 29-32/1000 deliveries. Over the past several years, observations have been that EP are seen more frequently in women who are light-coloured or have fair skins in Ghana. However, a search in the literature identifies no



such risk. This study was done to scientifically look at this presumed risk factor.

**Aim:** To determine if women presenting to KATH with EP were more likely to be fair in skin complexion compared to those having intrauterine pregnancies.

**Methods and materials:** This was a matched case-control study of women presenting to the Obstetrics and Gynaecology department of KATH with ectopic pregnancy or intrauterine pregnancy between September 2011 and August 2012. All women presenting to the specialist consulting room or admitted to the department's wards of KATH were eligible for the study. All patients admitted to any of the gynaecologic wards: a- for cases, post-surgery confirmed diagnosis of ectopic pregnancy; b - for control, (absence of an EP). Data were recorded on a pre-designed case report form that reflected all variables to be collected. The records were doubly entered into electronic case report forms designed using Microsoft® Access 2007 software. The data were compared and cleaned on a weekly basis to eliminate inconsistencies. Cleaned data were exported to Stata/SE 11.2 for analysis.

**Results:** A total of 3,961 admissions were made to the gynaecologic wards of the hospital in the period under study. Of these, 418 were ectopic pregnancies, giving a prevalence of 10.6% of admissions. In all 330 participants were included in the study, 110 cases and 220 controls. Their ages ranged from 16-48, with a mean of 27.0 years. Most of the study participants were in employment (43.3%); very few (5.8%) had no formal education, and majority had lifetime sex partners of 2-3.

**Conclusion:** The study has established that being fair in skin complexion in black women is an added risk factor. This risk is found to be irrespective of whether the fairness is natural or has been artificially induced with skin toning or bleaching creams and soaps. This undoubtedly will help practitioners diagnose both ruptured and unruptured ectopic pregnancies as well as diagnosing atypical cases such as chronic/ leaking ectopic pregnancy.

**Antonyan M.I., Tischenko A.**

### **PREGRAVIDARUM TRAINING OF WOMEN AFTER UNREALIZED PREGNANCY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Obstetrics and Gynaecology N1, Department of Normal Physiology**

**Aim.** The research aims at the study of the immunological and histological endometrium peculiarities in women who experienced unrealized pregnancy after IVF in order to ascertain the most favourable background for conception and pregnancy development.

**Materials and methods.** Of the 104 women who were observed 44 women had a definitive diagnosis of unrealized pregnancy after IVF (first group); 30 women opted for pregnancy termination (second group); the control group included 30 healthy women contemplating prospects of pregnancy. Their clinical state was assessed by means of hormonal methods, histological, immunological features.

**Results.** The study elicited significant disturbances in the local cytokine balance, endothelial dysfunction, chronic inflammation in the endometrial histological structure that resulted in receptors susceptibility distortion in the case of unrealized pregnancy after IVF. The results showed that in the pathogenesis of unrealized pregnancy is a violation of angiogenesis accompanied by endothelial dysfunction and impaired immune status. Comprehensive treatment with ozone therapy and immunocorrector polyoxidonium



significantly is indicating that the positive effect of the treatment. Thus, analysing the results obtained from women who underwent the ozone therapy it was shown that the ozone therapy helps in preventing the complications of IVF- assisted pregnancy.

**Conclusions.** Complex pathogenetic treatment including ozonotherapy and immunocorrectors for pregravidarum training enhances efficiency of pregnancy in the next IVF cycles.

**Feskov V., Gnatenko O., Dobrovolskaya L., Abascalazede S., Schevtsova E., Mironchuk K., Buravel B.**

**FERTILITY PRESERVATION FOR PREMATURE OVARIAN INSUFFICIENCY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of obstetrics, gynecology and adolescent gynecology,**

**Introduction.** Premature ovarian failure (POF) is a condition causing amenorrhea, hypogonadism, and elevated gonadotropins before the age of 40 years. The newborn infant are losing 80% of her original germ cell endowment. This number decreases to 300,000 by puberty, of which only 400–500 follicles will develop fully and ovulate over the next 35–40 years. Every cycle by ultrasound test we can observe 10-15 antral follicles, which were recruited for dominant follicle development. Physiologically, after 35 years quantity of antral follicles recruitment significantly decreases. Until menopause after 45 years it fully stops.

**Results.** POF syndrome is consequence of chromosome disorders (Turner syndrome, X-chromosome disorders), accelerated Follicle Atresia (X-Chromosome deletions, genetic mutations), immunological damage of ovaries (autoimmune diseases), iatrogenic causes (cancer treatment, long term a-GnRH administration, ovarian surgery). Premature ovarian insufficiency is a condition preceding POF. There no single criteria of in distribution. For reproductive issues, POI is decreasing of ovarian reserve in age before 32 years, as it occurs after 40. On stage of POI there no significant clinical manifestations. Only antral follicle count less than 3-5 in both ovaries, FSH elevation, AMH depletion are able to diagnose it. Women with history of infertility, child birth planning after 40 years, whom ovarian reserve characteristics of POF, are able to performe IVF. Aim of this procedure is embryo or oocyte cryopreservation to achieve child birth before POF. For young women without male partner assisted reproductive technologies are able to performe oocyte banking by two and more ovarian stimulations. It is necessary only one cryopreserved high quality embryo to achieve live birth. For oocytes this number is 4-6 mature oocytes. Ovum pick up is possible without controlled ovarian stimulation in nature cycle IVF. This technique allow to fertilize only one oocyte and receive 1 embryo for transfer into uterus or cryopreservation. Comfortable tool for women in cases of low respond for r-FSH treatment, significant ovarian reserve decreasing. After POF is completed, one way to achieve pregnancy is ovum donation. Mental, national, religion and other conditions are making woman to do difficult choise. POI and POF defenition is much more simple for differentiation. Correct decision making is important event in for reproductive lifespan of woman.

**Conclusion.** Those options are available for women with high risk of POF on stage POI to prevent main problem — infertility.



**Halo Azad Khidwrbagi, Muryzina I.**  
**PATHWAY TO IMPROVE REDUCED FECUNDITY IN THE WOMEN**  
**AFTER MISSED ABORTION**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**The department of Obstetrics and Gynecology**

**Introduction:** Missed abortion (MA) should be paid a lot of follow-up attention by gynaecologist because this clinical entity often entails significant reduction of fecundability including both natural cycle fecundity and assisted reproductive technology cycle efficiency. Suggested causative factors are still controversial and there is no incontestable evidence to attribute any of them such a peculiar mechanism of early pregnancy loss. That is why our study was aimed at elucidating mechanisms of MA deplorable sequels and suggesting pathways for solution of this problem.

**Material and methods:** There were 124 women under surveillance. The main group (I) comprised 64 women with definitive diagnosis of MA. The group for comparison (II) included 30 women admitted for termination of the pregnancy according to their will. Following-up these women' reproductive function, 30 healthy women contemplating prospect of pregnancy were picked out as a control group (III) in order to ascertain the more favourable background for conception. Subsequently the main group was divided into two subgroups according to their management: Ia (31 patients) – monophasic combined oral contraceptive pills, Ib (33) – additional administrative of cryopreserved placental extract (CPE) intramuscularly 1,8 ml at 10, 12, 14, 16, 18 days of menstrual cycle. Clinical state was assessed by means of routine and hormonal methods, histological, immunological features and functional capacity of the endometrium obtained by pipelle-curette at 19-21 day of cycle were determined, IL-1 $\beta$ , IL-6, IL-10, TNF- $\alpha$ , glycodeilin values in the washings from the uterine cavity were assessed by immunenzyme method.

**Results:** The study elicited significant disturbances of endometrial histological structure looking like chronic inflammation, recognized distortion in the local cytokine balance and endometrial steroid receptors susceptibility in the case of experienced MA. Inherent to healthy woman of her reproductive ages Th2-cytokine balance is superseded by Th1-cytokine preponderance with increased values of IL-1 $\beta$ , IL-6 and TNF- $\alpha$  in the endometrium. Although IL-10 is anti-inflammatory cytokine, its level was higher than in other groups that could explain the dormant mechanism of switching on the uterine contractility for expulsion of non-viable concept. Delayed and incomplete endometrial maturation, subsided endometrial oestrogen and progesterone receptors susceptibility in case of MA suggest of luteum corpus failure entailing a significant reduction of glycodeilin production which is the prerequisite for local Th2-microenvironment. CPE proved to have benevolent influence on luteum corpus function, endometrial maturation and glycodeilin production, steroid endometrial receptors susceptibility and drift of endometrial microenvironment towards Th2-cytokine predominance.

**Conclusion:** Proposed treatment facilitates recovery of reproductive function and increases the likelihood of successful conception and uneventful course of pregnancy.

**Kalashnikova O.S.**  
**APPLICATION OF  $\alpha$ -TOKOFEROL ACETATE IN PATIENTS WITH**  
**SYMPTOMATIC UTERINE LEIOMYOMA.**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of obstetrics and gynecology №1**

**Introduction.** Hypoxia is one of the leading triggers of lipid peroxidation (LPO). LPO products are injury agents of structures of organ's cells and tissues. Acute haemorrhage leads



to LPO-processes activation and reduces activity of antioxidant system (AOS). However, the question about status of LPO and AOS in persons with chronic haemorrhage is still open.

**The aim** of the study was to investigate the peculiarities of LPO and AOS in women with symptomatic uterine leiomyoma and their correction.

**Materials and methods.** Our investigation was conducted on 40 women of reproductive age with symptomatic uterine leiomyoma. All patients were divided into 2 groups. Group I (19 patients) received standard therapy (900 mg of Buserelin daily in 3 doses, intranasally). Alfa tocopherol acetate was added to the therapy (100 mg per day) in group II (21 persons). Lipid peroxidation levels were assessed by serum levels of diene conjugates (DC) and malondialdehyde (MDA) by fluorimetric method. The activity of AOS was assessed by  $\alpha$ -tokoferol (TF) concentration. Calculation of the coefficient of MDA/TF was made. The significance of differences was assessed by Student's coefficient.

**Results.** Determination of LPO intensity revealed the following features in patients with symptomatic uterine leiomyoma before treatment: DC level was increased by 40% ( $p < 0.05$ ), MDA was elevated by 30% ( $p < 0.05$ ) as compared with normative values. In reviewing the components of the AOS separately, TF was found to decrease by 80% ( $p < 0.01$ ). MDA / TF coefficient was  $0,79 \pm 0,03$ . At repeated examination after a month, some difference of parameters depending on the group of patients was found. Decrease of DC level was observed in gr. II significantly more frequently (I gr. - 52,6%, II gr. - 85.7 %,  $p < 0.05$ ); reduction of MDA level also registered more often in gr. II (I gr. - 42.1 %, II gr. - 90.4 %,  $p < 0.001$ ). As for AOS indicators, gr. I showed a 60 % decrease of TF level. In gr. II patients TF level ranged within normal limits. Coefficient of MDA / TF was significantly higher in women of gr. I (I gr. - 0.72 vs II gr. - 0.51 ,  $p < 0.05$ ).

**Conclusions.** Thus our study found that the system "lipid peroxidation - antioxidant protection" in patients with symptomatic uterine leiomyoma is characterized by a severe imbalance manifested by decreased activity level of antioxidant protection and lipid peroxidation processes intensification, which requires appropriate therapeutic correction . Adding to the treatment exogenic antioxidants ( $\alpha$ -tocopherol acetate) promotes stimulation of natural antioxidant systems and it is one of the essential elements of the complex therapy in women with symptomatic uterine leiomyoma.

**Konoval A.O.**

**VALUE CONTENT OF MUCIN IN CHRONIC SALPINGOOFORIT (HSO)**

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**Department of obstetrics and gynecology №2**

**Introduction:** Development of inflammatory diseases of the small pelvis organs depends on the resistance of the body, nonspecific protective factors and persistent properties of microorganisms. Studied the species composition and biological characteristics of the microflora of the vagina and cervix in women with inflammatory diseases of internal genital organs, and it is shown that inflammatory diseases of internal genital organs are taking place against the background of dysbiotic conditions, characterized by allocation of microorganisms with high perzistentne properties and reduction actions nonspecific protective factors. The latter play a major role in the pathogenesis of inflammatory diseases and dysbiotic conditions of internal genital organs of the female and require further study.



**Aim:** increase of efficiency of diagnostics and treatment of women with HSO on the basis of the research of mucin in vaginal and cervical secretions.

**Materials and methods:** the study evaluated a factor of nonspecific protection sheath, as Mucins in vaginal and churches unique secret in 70 patients aged 25 to 39 years, with HSO comparison with the control group (n=35). Research groups are divided as follows: group 1-patients with HSO up to 10 years; group 2-patients with HSO more than 10 years; group 3-patients with HSO who received treatment, including biological preparations immunomodulating; group 4-the control group.

**Results:** The study found that increased levels of mucin in cervical and vaginal secret was: persons of group 1 ( $30,62 \pm 0.58$  and  $29.92 \pm 0.65$  used,  $p < 0.05$ ) and in patients of group 2 -  $26,21 \pm 0.44$  and  $21,39 \pm 0.36$  used respectively ( $p < 0.05$ ) compared with the control group of women ( $15,40 \pm 0.26$  and  $13.42 \pm 0.53$  used,  $p < 0.05$ ). As a result of immunomodulatory therapy in women 3 groups contents of mucin in cervical and vaginal secretions amounted to  $16.22 \pm 0.63$  and  $14.51 \pm 0.81$  used respectively ( $p < 0.05$ ).

**Conclusion:** based on the obtained results it can be stated that in inflammatory diseases of the small pelvis content mucin in vaginal and cervical secretions higher, reducing the impact of non-specific factors of the protection of the vagina and leads to the development of dysbacteriosis of the pelvic organs. When applying immunomodulatory therapy installed the normalization of the level of mucin, which indicates the restoration of nonspecific protective factors vagina, normalization of natural resistance of the organism by interaction with infectious agent.

**Litvinova A. V.**

**PREPARATION OF THE PREGNANT WOMEN WITH RISK OF DEVELOPMENT OF ANOMALIES OF LABOR ACTIVITY TO DELIVERY**

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**Department of Obstetrics and Gynecology №1**

**Introduction.** Under predelivery preparation imply the complex of measures, directional on creation of biological readiness of organism the woman to labor.

**Aim.** Construction of scheme of antenatal preparation for the pregnant woman with risk of development of anomalies of labor activity through the drugs intensifying metabolic processes in system the mother - placenta -fetus, and also elevate synthesis of Prostaglandinums (Pg) E1, E2, F2 $\alpha$ .

**Material and methods.** Examination 98 pregnant women with risk of development of uterus contractile activity (UCA) by type discoordinated labor activity (DLA) -1group, and excessively stronger labor activity (ESLA) – 2 group. The comparison group make up of 30 healthy pregnant, with was not need of realization perinatal preparation. The scheme predelivery preparation of pregnant 1-st group consist of prescription within a week before labor calcium antagonist (CA) under the following scheme: Nifedipinum in tablets on 30 mg/per day (capsule on 10 mg 3 times per day), or Verapamilum on 1 tablet (120 mg) 2 times per day. Actovegin was applied in a dose 20 ml, by the intravenous drip introducing on 250 ml of physiological solution, 1 time per day daily, during 7 days. The pregnant woman of 2 group with the purpose predelivery preparation assigned calcium antagonist within 7 days before labor Nifedipinum in tablets on 30 mg/per day. (capsule on 10 mg 3 times per day), or Verapamilum on 1 tablet (120 mg) 2 times per day.



**Results.** At perinatal preparation of pregnant both groups with risk of development anomalies of labor activity the obstetrics situation before week of labor was improved: should be noted of to mature of cervix uterus, the frame of a placental tissue under the data by ultrasound examination (USE), was normalization of hemodynamics in a system the mother – placenta - fetus under the data Doppler examination. The women marked considerable improvement of general state of health, increase of vital function, feeling of abirritation, improvement of dream and appetite. The parameters of the laboratory data, clinical and biochemical analyses of a blood and urine were normalized. At research of Hormonums and biologically active in serum of blood of the pregnant women, their normalization up to a level of the healthy pregnant women was marked. However, in 1-st group of the pregnant women receiving in complex perinatal preparation Actovegin, the recovery of studied parameters descended more quickly. The morphological research of placenta after labor educed the row of substantial features for pregnant of basic group, which can be generalized, naming them the "effect of rejuvenation". There was stimulation of formation of shallow end-capping villus, increases of amount of again well-educated capillaries and shallow end-capping villus. At the analysis of morphological changes it is possible to mark in spiral arteries, that after application of offered scheme treatment there is their complete renewal for pregnant with extragenital pathology, that removes the signs of development of morphological changes in a placenta.

**Conclusions.** Employment predelivery preparation with preparation of Actovegin together with calcium antagonist normalization of interrelation in a system the mother – placenta – fetus at discoordinated labor activity and excessively stronger labor activity. The offered scheme of predelivery preparation of pregnant it is expedient to apply at risk of development of anomalies of labor activity.

**Lutskiy A.S., Kalnytskaya K.V., Rusak E.V**

## **THE FREQUENCY OF PREGNANCY ACHIEVEMENT AFTER ASSISTED HATCHING**

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**Department of obstetrics, gynecology and adolescent gynecology**

**Introduction.** The role of the assisted reproductive technologies (ART), and, in particular in vitro fertilization (IVF) is constantly growing in infertility treatment. The efforts of scientists are directed at increase in IVF efficiency. The success of this method depends on many factors one of which is successful implantation of an embryo. The outer shell plays an important role in fertilization. Upon penetration of a spermatozoon there are some changes in the shell preventing the penetration of the following male gametes. When a blastocyst reaches the uterus the shell of an embryo becomes thinner and breaks. This process is called hatching. Thickness of a shell is influenced by many factors, first of all age. With age the outer shell hardens that complicates hatching. Therefore, probably not all embryos can escape out of the outer shell themselves. Hatching is one of important events of embryo development. For simplification of hatching achievement assisted hatching is used – dissection of an outer shell of an embryo for simplification of its exit and increase of implantation frequency.

**Material and methods.** The group of research consists of 19 patients with a tubal factor infertility aged from 38 to 40 who had infertility treatment in Academician V.I.



Gryshchenko Clinic for reproductive medicine in 2012-2013. A long protocol with agonists of releasing-hormone was carried out to all the patients. No patient achieved pregnancy. 3-4 months later the repeated protocol with use of assisted hatching for the second day of cultivation of embryos was carried out. Implantation frequency made 21,5%. Clinical pregnancy was achieved by 8 patients out of 19 that made 42,1%.

**Conclusion.** Assisted hatching can promote the increase in implantation frequency, overcoming the problem connected with the hardening of an outer shell that leads to increase in frequency of pregnancy achievement.

**Makki Rami Jamal**

## **OXIDE OF NITROGEN IN TREATMENT ENDOCRINE STERILITY**

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**Department of Obstetrics and Gynecology №1**

**Introduction.** The problem of a fecundity is a paramount problem of modern medicine. Oxide of nitrogen - the physiological regulator easily in pouring through biological membranes, also will activate a vasodilatation, cellular metabolism, enzymatic activity, neogenesis both bistimulations of endocrine and immune cells.

**Aim:** there was an increase of efficiency of treatment of endocrine sterility by clasification of questions of pathogeny, on the basis of clinico- experimental ground and development of new complex method of therapy with the use of NO for patients with the anovulatory form of sterility and insufficiency of lutein phase.

**Material and methods.** Carrying out the experiment on old doe-rabbit with signs of fading of function of system. Daily, within 3 days through a special point, effected processing a vagina doe-rabbit within 3 minutes gaseous oxide of nitrogen (1group). For comparison, the contents of hormone and change in generative organs at old doe-rabbit with signs of fading of system of a breeding before influence on them oxide of nitrogen (2group) and at young doe-rabbit (3group) is investigated.

**Results.** After use oxide of nitrogen rising oestradiolum and progesteronum and blood doe-rabbit of 1-st group is observed in comparison with 2 group old doe-rabbit, with which did not effect processing a vagina oxide of nitrogen (Oestradiolum - with  $55,7 \pm 5,2$  nMol/l up to  $97,2 \pm 3,8$  nMol/l; Progesterone - with  $44,7 \pm 1,8$  nMol/l up to  $54,1 \pm 1,8$  nMol/l). Concentration of Oestradiolum at an animal after application oxide of nitrogen was higher, than at young doe-rabbit - 3-rdgroup. The hydrocortisone was enlarged in 1-st group of animals and was much higher, than at young doe-rabbit ( $72,3 \pm 2,4$ ;  $p < 0,05$ ;). The morphological research vaginal part cervix of the uterus, uterus and ovaries has shown, that after processing oxide of nitrogen the expressed hyperplasia of pots having a vagina is observed the hyperemia of a mucosa strengthens, and descends flattening of endotheliocytes. The inflow of a blood to a vagina strengthens at the expense of a vasodilatation microcirculation of a channel. In a uterus, after processing oxide of nitrogen, there is a proliferationendometrium, vasodilatation and plethora of a tissue. In ovaries old doe-rabbit - diffuse growth of a connecting tissue in a parenchyma of ovaries expressed sclerosis and hyalinosis of a vascular wall, narrowing of lumens of pots microcirculation of a channel. After processing a vagina doe-rabbit oxide of nitrogen, there is a vasodilatation microcirculation of a channel to a hyperemia of a tissue, activization of the follicular device and output of erythrocytes in perivascular space. In cortical stratum of ovaries - individual primary follicles and planting secondary follicles new yellow bodies. Obtained data about



influence of NO on a height and development of follicle, the state of endometrium, hormonal and immunological parameters, allowed to work out and ground the new going near therapy of women with the endocrine form of sterility.

**Conclusion.** Oxide of nitrogen produces a stimulation morfofunctional state of genesial members by old doe-rabbit, and also make more active sexual hormone and steroid hormone, being by the factor recovering dying away genitival function of animals, caused by age changes. Vaginal irrigations of NO assist the wave of blood to the organs of small pelvis, improve the trophism of reproductive organs, reflex's normalize making gonadotropic and other hormones, and also stimulate ripening of follicles and ovulation.

**Marakushina E.A., Tkachenko V., Imsheneckaja A.A.**

### **HEMODYNAMICS FEATURES OF FETOPLACENTAL COMPLEX IN PREGNANT WOMEN WITH GESTATIONAL PYELONEPHRITIS**

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**Department of obstetrics, gynecology and pediatric gynecology**

**Introduction.** One of the urgent problems of modern obstetrics is gestational pyelonephritis in pregnancy. From 2000 to 2010, incidence of pyelonephritis, according to the Ministry of Health of Ukraine, in pregnant women increased by 3.6 times . Pyelonephritis in 75 % of cases develop before age 40, often during pregnancy. This limits their reproductive function, leading to the birth of children who are prone to kidney disease. Gestational pyelonephritis has a negative impact on pregnancy and the fetus . Pregnancy provokes frequent exacerbation of pyelonephritis and frequent attacks of renal colic. Most children are born with signs of intrauterine infection.

**Aim:** To identify the characteristics of hemodynamic disturbances utero- placental-fetal blood flow in pregnant women with gestational pyelonephritis.

**Materials and methods.** We examined 56 pregnant women in gestational age 30-37 weeks. Depending on the characteristics of the clinical course of pyelonephritis 3 clinical groups. I clinical group consisted of 28 ( 50 %) women with gestational pyelonephritis without urostaz . II clinical group consisted of 17 ( 30.36 %) women with gestational pyelonephritis with urostaz . III clinical group consisted of 11 ( 19.64 %) women with gestational pyelonephritis with urostaz that required surgical correction. Verified clinical diagnosis by laboratory methods and a standard ultrasound of the kidneys . All pregnant women after clinical and laboratory studies conducted ultrasound of the urinary system , evaluation of the fetus , placenta and Doppler utero-placental- fetal blood flow.

**Results.** In 17 ( 30.36 %) women I clinical group was marked by violations of hemodynamic fetoplacental type that characterized rising resistance index (RI )  $0,74 \pm 0,02$ , systolic -diastolic ratio ( SDR )  $3,84 \pm 0,26$ , and pulsating index ( PI )  $1,17 \pm 0,04$  in the umbilical artery . In group II clinical hemodynamic changes in the mother- placenta-fetus system were found in 10 ( 17.86 %) women and expressed in violation of hemodynamics by utero-placental type ( RI growth  $0,72 \pm 0,01$ , SDR  $3,57 \pm 0,11$  and PI  $1,42 \pm 0,73$  in the uterine arteries ). In group III 6 (10.7 %) women diagnosed violation hemodynamics by fetoplacental and utero- placental type, even in 3cases ( 5.35% ) were found critical violations blood flow (zero diastolic component in the umbilical artery).

**Conclusions.** 1. In pregnant women with pyelonephritis without urostaz dopler most pronounced changes were found in fetoplacental blood flow. 2. In pregnant women with



pyelonephritis and urostaz dopler most pronounced changes were found in the utero-placental blood flow, indicating a compression of uterine artery by upper urinary tract. 3. The most pronounced doppler changes fetoplacental blood flow encountered in pregnant women with gestational pyelonephritis with urostaz that required surgical correction, indicating the formation of placental insufficiency with chronic kidney disease. Thus, regardless of the clinical peculiarities of pyelonephritis in pregnancy, it is advisable to dynamic ultrasound and doppler monitoring of fetus and placenta.

**Mu'awya Salem Almaradat**

**EFFECTIVENESS OF DIFFERENT METHODS OF TREATMENT BY  
ISTHMIC-CERVICAL INSUFFICIENCY**

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**Department of Obstetrics and Gynecology N1**

**Introduction.** The proposition same methods of operating and conservative therapy by isthmio-cervical insufficiency (ICI), how of period of pregnancy, so before it. All of them have a general purposes - to prevent opening of cervix uterus as factor of premature labor.

**Aim.** To study risk factors of ICI and to evaluate effectiveness of different methods of treatment of this pathology.

**Material and methods.** We study 65 cases of ICI, from them 40 on case of histories, and 20 - own research. For comparison parameters (risk factors, result of Doppler and bimanual examination) the control group consist from 20 pregnant women with physiological flow of pregnancy. The anamnesis of life, somatic pathology, childbirth function, gynecology disease was studied. The diagnosis ICI verification under the data bimanual examination and ultrasonic researches. The correction ICI was conducted for 65 women: by a discharging pessary for 54 (83,1%) patients, stitching two  $\Pi$  - figurative junctures near to area of internal cervix for 11 (16,9 %).

**Results.** The data of an anamnesis allow to suspect for the women, inspected by us, the following contributing causes for development ICI: 1) traumatic, 2) infectious, 3) hormonal, 4) combined. These causes promote direct and mediated damage of tissues of cervix of uterus, hormonal disadaptation, decrease of protective forces of an organism. The consistence of cervix uterus was softening for the majority patient - 70 %, mild for 26 %, and only she remained with 4 % dense in early durations of gestation. The same regularity is marked and in a rule of cervix of uterus: in 84 % of cases she placed on an axis of a basin. Thus the external cervical canal were or is closed (15 %), or is driven for one transversal finger (84 %), and only for one patient (1 %) it skipped two transversal fingers. The internal cervical canal were closed in 75 % of cases, we drive for one transversal finger in 25 %. The maximum structural changes of cervix of uterus are marked by us in term 16-20 weeks of gestation. The data of ultrasound examination (USE): for 52 (80 %) women of research with the purpose of confirmation ICI was conducted USE of pregnancy transabdominal by access. The research was conducted with 12 on 30 weeks of gestation. Length of cervix uterus under the data of USE variation from 21 up to 45 mm. With 14 about 20 weeks of pregnancy length of cervix uterus of 21-30 mm was watched for primigravida in 46,7 % of cases, for recursive gravidin 28,6 %, 31 - 35 mm in 40 % and 42,8 %, 36 - 45 mm in 13,3 % and 28,6 % accordingly. We have conducted research blood flow in parent uterus arteries and small-sized vessels of cervix uterus for the women with diagnosis of ICI. For veracity given, research the control board was collected, which one was compounded by the women



without ICI ( $n=20$ ). Term of realization of Doppler research was on the average  $25,04 \pm 4,72$  weeks of pregnancy in a basic group and  $22,95 \pm 3,05$  in control group. The authentic increase IR -  $0,63 \pm 0,07$ , PI -  $1,15 \pm 0,24$  and SDC -  $2,80 \pm 0,53$  ( $p < 0,05$ ) in small-sized arteries of cervix uterus in second half of pregnancy for recursive gravid of a basic group in matching with monitoring group is revealed: IR -  $0,55 \pm 0,05$ , PI -  $0,88 \pm 0,15$ , IBC -  $2,20 \pm 0,57$ . Allowing, that in second half of pregnancy (after 20 weeks) the numeric values of indexes of vascular resistance are stable.

**Conclusions.** All above listed methods have allowed to diagnostics of ICI at 13-15 of weeks of pregnancy for 7 % patients, at 52 %, in 21 - 30 weeks - for 41 %. ICI was diagnostics by us about 20 weeks of gestation. The our data can be used for diagnostic ICI for recursive gravid of the women after 20 weeks of gestation.

**Orlova Maryna, Gradil Oksana**

### **ANTIOXYDATIVE MELATONIN'S EFFECT IN THE OVARIAN FOLLICLE**

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**Biochemistry Department**

**Introduction.** Melatonin, a hormone mainly synthesized in the pineal gland, has multiple effects on a number of different physiological processes related to circadian rhythms and reproduction. It has been believed that melatonin regulates ovarian function by the regulation of gonadotropin release in the hypothalamus-pituitary gland axis via its specific receptors. Human preovulatory follicular fluid also contains melatonin, but its physiological role in the ovary has not been understood, it is possible that melatonin is the most effective antioxidant in the follicle working to reduce the oxidative stress in the oocyte. Oxidative stress is a noticeable factor of ovarian damage. It has to be limited in order for a good embryo to be produced.

**Aim.** The aim of the investigation was to study the concentration of melatonin and isoprostane-8 in blood and follicular fluid of healthy and infertile females.

**Materials and methods.** 60 females, who had underwent the stimulation of ovulatory process for in vitro fertilization (IVF), were examined. Healthy donors of oocytes were enlisted to investigation as a control group. Infertile patients were divided into 2 groups. Females from the 1<sup>st</sup> group received melatonin treatment before removing oocytes from the ovaries and females from the 2<sup>nd</sup> group did not receive it. The levels of melatonin and isoprostane-8 in blood serum and follicular fluid of females were measured by ELISA.

**Results.** It was found that quantity and quality of oocytes depended on the level of melatonin in blood serum and follicular fluid. Number of oocytes was higher in females with previous melatonin treatment compared to other infertile patients. Concentration of melatonin in blood serum was 2.5 times lower and concentration of isoprostane-8 was 1.5 times higher in infertile females before and after stimulation, respectively. It indicated the presence of oxidative stress in ovarian follicles of infertile females. Melatonin treatment removed differences between healthy and infertile patients. Decreased level of melatonin in blood serum of healthy donors after stimulation of ovulatory process might be caused by its higher uptake by the ovary accompanied by elevated level of this hormone in follicular fluid.

**Conclusions.** Melatonin reduces oxidative stress as an antioxidant. Clinical study demonstrates that melatonin treatment of infertile females increases number of mature



ovarian follicles and intra-follicular melatonin concentrations and reduces intra-follicular oxidative damage, which should ameliorate fertilization and pregnancy rates.

**Palamarchuk V.V., Pashkova N.A., Saenko V.P., Kolisnyk A.I.**  
**PSYCHOEMOTIONAL ASPECTS IN WOMEN WITH A SYNDROME OF**  
**SURGICAL MENOPAUSE.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Obstetrics, Gynecology and Children's Gynecology**

**Introduction.** In population among women of reproductive age the percent of women who underwent hysterectomy with or without adnexectomy for whatever reasons has been increased recently. Series of researches, done both in our country and abroad, prove a wide frequency and a severe course of a syndrome of surgical menopause (SSM), with more expressed manifestations both vegetovascular and psychoemotional disturbances after hysterectomy than after a hysterectomy without removal of ovaries. Only a few publications show the results of studying the sexual function in women and psychological adaptation after hysterectomy. Data about peculiarities of sexual function depending on hysterectomy volume are small and ambiguous, that's why the present study is actual.

**Aim.** To study the peculiarities of SSM course on the basis of psychopathologic and sexual disturbances in order to improve the algorithms of SSM correction.

**Materials and methods.** There have been examined 100 women at the age of 40-55 years old, after a hysterectomy, they were divided into 4 groups (25 women in each) depending on a volume of operative treatment. I group included women with supravaginal hysterectomy with appendages. II group – supravaginal hysterectomy without appendages. III group – hysterectomy with appendages. IV group – hysterectomy without appendages. The definition of peculiarities of SSM course was carried by clinical investigation with calculation of an index of Kuperman's index and menopause index (MPI) in E.V. Uvarova and V.P. Smetnik's modification. An assessment of an emotional state was conducted by an anxiety level detection according to S.D. Spilberger's dial in J.A. Hanina's modification. The study of sensomotor reactions and attention were done by means of correction assay. Peculiarities of sexual function after operation were determined by anonymous questionnaires and were estimated by Sabbatsberg Sexual Self-Rating Scale. Results have been assessed by methods of variation statistics with usage of up-to-date standard computer programs.

**Results.** Psychoemotional disturbances in a greater degree were expressed in I and III groups. However, during the first 6 months there have been larger expression of psychoemotional disturbances in patients after hysterectomy (III group – 81.77 %; IV group – 71.25 %), than after supravaginal hysterectomy (I group – 87.88 %; II – 53.76 %). Larger expression of psychoemotional disturbances after hysterectomy than after supravaginal hysterectomy was confirmed also by a high index of level both personal and reactive anxiety in women of appropriate groups during the whole period of observation. In the structure of psychoemotional disturbances of SSM an asthenic and depressive syndrome prevailed whereas cenestophobic and hysterical syndromes became perceptible rarely and preferentially in the accented people. So a serious degree of psychoemotional disturbances after hysterectomy was watched preferentially in women accented on sensitive and hysterical types who indicated in the questionnaires a perception of the given volume of the operation as sexuality and femininity losses as a whole. Analysis of anonymous



questionnaires with problems of sexual function of women after hysterectomy has not shown the reliable differences in libido changes depending on hysterectomy volume. At the same time there has been noted the connection between these indices with the fact of removal or conservation of ovaries, especially during the first year after operation. It is necessary to notice that in the structure of disturbances of sexual function in women after hysterioovariectomy during the first year libido reduction prevailed, and during the second year – dyspareunia and anorgasmia.

**Conclusions.** The received results testify that frequency and a degree of manifestation of sexual disturbances in women after hysterectomy does not depend on operation volume (an extirpation or supravaginal uterectomy), and are stipulated by peculiarities of sexual life before operation, a level of sexual education, age of the woman, her personal characteristics and psychoemotional state, the fact of removal of ovaries.

**Plugina A.A.**

### **OBSTETRICAL BLEEDINGS: CONTRIBUTION TO PROBLEM RESOLUTION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Obstetrics and Gynecology №1**

**Introduction:** Maternal mortality is the most tragic page in the obstetric service. Unfortunately, in 2012 the massive obstetric hemorrhage took the first place among the causes of maternal mortality in Ukraine ahead of severe somatic pathology, which confirms the necessity of scientific research and practical application of innovative approaches to this problem.

**Aim:** To analyze the effectiveness of therapeutic interventions prior to ligation of the main vessels, study the effectiveness of ligation of the main vessels, show the need for ligation of the great arteries in the prevention of major bleeding with the aim of conserving surgery.

**Materials and methods:** The real work was done in the Kharkiv regional perinatal center at the Department of Obstetrics and Gynecology №1. We have analyzed 36 cases of postpartum hemorrhage. All women were retrospectively divided into three groups depending on the volume of blood loss. Group I included nine women with blood loss up to 1500 ml, group II consisted of 12 women, blood loss exceeded 1500 ml and group III included 15 women with blood loss less than 500 ml.

**Results.** In group I 30 % comprised caesarean section about placenta previa, 22.3 % comprised premature births and were completed by urgent caesarean section in connection with the premature detachment of placenta, 44.5 % comprised term vaginal delivery path. In group II, more than a half of cases (75%) were associated with bleeding uterine hypotonia, 16.7 % comprised injuries of soft birth canal, 8.3% were diagnosed with placenta adhaerens; 16.7 % comprised premature delivery, and delivery of 8.3% was operative. In group III, all acts of delivery were urgent and conducted vaginally with active management of the third stage of labor. Part multiparous groups ranged between 58.3 % to 66.7 % and had no significant differences. With the development of hypotonic bleeding initial treatment was conservative and designed to increase the tone and contractility of the uterus, while filling the circulating blood volume. In case of continuous bleeding, surgeons took measures concerning operational activities. In case of massive bleeding caused by placenta previa or



premature detachment of the placenta, surgical treatments were used immediately. Surgical hemostasis included: internal iliac artery ligation, the imposition of compression sutures on the uterus by B-Lynch. In group I surgical haemostasis was formed in 55.6 % of cases, performance of which was at the rate of 80 %, which indirectly gives evidence of the fact that blood loss may be controlled by us. Group II surgical haemostasis was formed in 91.7 %, and in 16.7 % of which a combination of ligation of the internal iliac arteries and compression seam B-Lynch were held, and hemostasis efficacy was at the rate of 90.9 %. At birth vaginally only in 10.3% of women in childbirth went to surgery in the first group, 3.4 % of patients in the second group , which demonstrates the effectiveness of active management of the third stage of labor. 8 of parturients after cesarean section in 12.5 % of cases developed intraoperative hypotonic bleeding, surgical hemostasis was undertaken immediately after suturing of the uterus.

**Conclusions.** According to the frequency the first place is taken by hypotension uterus in the early postpartum period. The highest figure was in group II (75 %); second place occupies the pathology placentation from 8.4 % to 55.6 % , soft birth canal injury took third place for reasons of early postpartum hemorrhage and was 5.6 %. An important factor in controlling blood loss from any cause is its adequate replenishment depending on the amount of blood loss. In our study, blood loss was 1500 ml filled through crystalloids and colloids using the minimum amount of fresh frozen plasma. Thus, ligation of the main arteries of the pelvis due to massive blood loss is very effective surgical procedure in the complex of therapeutic measures to stop uterine bleeding. A small additional amount of blood loss and the possibility of prophylactic use should be noted as its benefits. Ligation of the internal iliac arteries should be regarded as the method of choice in terms of preservation of reproductive function in young women.

**Selby Daniel**

**TRADITIONAL OBSTETRIC CARE IN AFRAM PLAINS-GHANA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Obstetrics and Gynecology №1**

**Introduction:** Access to quality maternal health services mainly depends on existing policies, regulations, skills, knowledge, perceptions, and economic power and motivation of service givers and target users. Maternal mortality is high in most African countries, particularly in rural areas like Afram Plains where access to formal health care is limited. The sociopolitical and economic environment complicates the medical factors directly responsible for this high rate. Three quarters of deliveries in Ghana are still attended by untrained personnel, including traditional birth attendants (TBA's), and maternal mortality remains high. Most TBA's in rural Ghana are elderly illiterate engaging in farming and other traditional occupation peculiar to their districts. Since the 1970s many African countries have addressed this problem by training TBAs in health promotion and in the basics of safe delivery and referral. Reasons for referral refusal frequently cited by TBAs include financial limitation or lack of transportation and the patients fear of disrespectful or unprofessional treatment from medical personnel, cost of delivery and accessibility to health care. In the rural environment, the trained TBA's greatest contribution to lower maternal mortality rates may lie in the area of health promotion rather than disease intervention. To respond to this challenge, the Millennium Development Goal 5 (MDG 5), which aims to improve maternal health was developed. The target is to reduce by three-



quarters the MMR between 1990 and 2015 and achieve universal access to reproductive health care by 2015. Ghana's MMR continues to be unacceptably high despite efforts made in an attempt to meet MDG 5. The Ministry of Health has been called on to treat maternal mortality as a national emergency. Critics question policy recommending involvement of TBAs in emergency obstetric care (EmoC) services in developing countries.

**Material and methods:** Fifty women (TBA's) in the various communities who attend to pregnant women in the district. Fifty TBAs were identified from several villages in 2010, interviewed and observed on their knowledge and practice in relation to EmoC. Quantitative and qualitative techniques were used for data collection and analysis depending on the nature of the information required

**Results:** Among all 50 TBAs approached, 74.3% were aged 50+ years while 85% had no formal education. Assisting mothers to deliver without taking their full pregnancy history was confessed by 67% of all respondents. Having been attending pregnant women with complications was experienced by 71.2% of all respondents. Only 38% expressed adequate knowledge on symptoms and signs of pregnancy complications. Lack of knowledge on possible risk of HIV infections while assisting childbirth without taking protective gears was claimed by 22.8% of the respondents. Sharing the same pair of gloves between successful deliveries was reported to be a common practice by 21.1% of the respondents. Use of unsafe delivery materials including local herbs and pieces of cloth for protecting themselves against HIV infections was reported as being commonly practiced among 27.6% of the respondents. Vaginal examination before and during delivery was done by only a 10.8% respondents.

**Conclusion:** TBAs in Afran Plains Ghana are still consulted by people living in rural areas. Unfortunately, TBAs' inadequate knowledge on EmoC issues seems to have contributed to the rising concerns about their competence to deliver the recommended maternal services. Thus, the authorities seeming to recognize and promote TBAs should provide support to TBAs in relation to necessary training and giving them essential working facilities, routine supportive supervision and rewarding those seeming to comply with the standard guidelines for delivering EmoC services.

**Tarawneh D.Sh., Nikulochkyna A.I.**

### **ROLE OF THROMBOPHILIA IN THE GENESIS OF UNSUCCESSFUL ATTEMPTS IN VITRO FERTILIZATION**

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**Department of Obstetrics and Gynecology №1.**

**Introduction.** Genetic and acquired forms of thrombophilia (TF) lead to unexplained infertility and may be the cause of early preembryonic losses due to defects in the implantation of a fertilized ovule.

**The aim** of the study was to identify the etiologic factors and the role of thrombophilia in the genesis of unsuccessful attempts In Vitro Fertilization (IVF) among women of reproductive age.

**Material and methods.** We examined 55 women with diagnosed genetic or acquired thrombophilia with infertility. IVF program was applied among all women. Patients were divided into two clinical groups: group № 1 consisted of 35 women with a failed IVF attempt, group № 2 included 20 pregnant after IVF. Laboratory diagnosis of



antiphospholipid syndrome (APS ) includes a definition of lupus anticoagulant and antiphospholipid antibody by ELISA - method. To exclude a possible deficit of natural anticoagulants - AT III and protein C - used functional coagulologic methods. Objective evaluation of the TF was carried out by determining the level of direct markers - TAT complexes and D- dimer. Examination of the causes of infertility and IVF failure included hormonal studies, genetic studies, ultrasound, hysterosalpingography, which were held depending on the clinical situation , as well as infectious profile. The obtained results were processed by the method of variation statistics using software Biostat .

**Results:** Investigations in the hemostatic system revealed hypercoagulation syndrome by increasing the activity of internal path of coagulation factors and increase platelet function (PAF) in the 1st observation group - 17 (48.6%) women, 8 (22.9%) - significant violations in the protein C system. The second group: The number of patients with elevated PAF was only 3 (15%) and none of them had any disorders in the system of protein C. There was a direct correlation between the frequency of detection of hypercoagulation syndrome and body mass index in both groups of women. Hyperhomocysteinemia was detected among 11 ( 31.4 % ) patients –group№ 1, and 4 patients ( 20 % ) – group № 2. Group №1: circulation of lupus anticoagulant is defined at 14 (40.0 % ) cases, increase of titer of anticardiolipin antibodies by Ig G - 12 (34.3% ) , 1 case (2.9%) Ig G titers to total phospholipid ( TF) was 98 U / ml (normal < 10 U / ml). Group №2: circulation of lupus anticoagulant is defined at 3 cases (15 %), Ig G titer was absent among all patients. The reduction of hypercoagulation factors at the 2nd group contributed to pregnancy after IVF .

**Conclusions.** The antiphospholipid antibodies are Ig G - globulins, which penetrates through the chorionic or placental tissue, contribute to the occurrence of thrombosis, heart attacks, activation of cytotoxic cells, causing a systemic inflammatory response syndrome. Pathogenetic effect of antiphospholipid antibodies is also associated with vascular thrombosis and microcirculation disturbance. Microvascular thrombosis at thrombophilia conditions directly or indirectly affects the processes of implantation and reduces the possibility of pregnancy after IVF.

**Tkachenko V. A., Nikitin R. A., Boyeva O. N., Andrus A. M., Mekesha M. S.**

**ASSESSMENT OF THE STATUS OF FETAL HEMODYNAMICS IN  
PREGNANT WOMEN WITH PREECLAMPSIA**

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**Department of Obstetrics, Gynaecology and Paediatric gynaecology,**

**Scientific supervisor – Doctor of Medical Science I. A. Tuchkina,**

**Candidate of Medical Science L.A. Vygovska.**

**Introduction.** Preeclampsia is a complication of pregnancy, characterized by a profound disorder in the functioning of major organs and systems. Normal fetal development depends on the stability of uterine-placental and fetal-placental blood flow. At present time secure, quick and economically available Doppler examination which has great diagnostic value is considered to be the main method for assessing the state of placental circulation and fetal hemodynamics. Intrauterine growth and development of the fetus are determined by three main factors, namely health status of the mother, functional ability of the placenta and health of the fetus. Close interaction of these elements comprises a single functional system, mother-placenta-fetus. A disorder of one of the factors results in the impairment of the fetal health, manifested by chronic intrauterine hypoxia and delayed



development. Hemodynamic disturbances in the mother-placenta-fetus system are of utmost importance in the formation of placental dysfunction and are characterized by an increase in peripheral vascular resistance in all its elements.

**Aim.** To determine the main diagnostic criteria of hemodynamic disorders in the fetus in preeclampsia.

**Materials and methods.** Comprehensive clinical and laboratory examination made it possible to form the main group which involved 60 pregnant women with preeclampsia of different severity. The control group included 40 pregnant women with physiological pregnancy. Gestation term comprised 28-40 weeks. All pregnant women underwent Doppler investigation using US scanner Medison 6000 CMT (South Korea) with the use of 3-7 MHz sensor, frequency 100 Hz filter and 2 mm volume. The study allowed to assess the state of the arterial blood supply to the fetus with the determination of pulse index, resistance index, systolo-diastole ratio, systolic, diastolic and medium blood flow velocity in uterine arteries, artery of the umbilical cord, thoracic aorta, middle cerebral artery.

**Results.** Doppler examination of the pregnant women of the control group did not detect hemodynamic disorders of the fetus. The following results were observed in the pregnant of the main group: - uterine artery – persistent early diastolic notch in the phase of early diastole, a decrease in diastolic blood flow; - umbilical artery – persistent zero and retrograde diastolic blood flow; - middle cerebral artery – an increase in vascular resistance index; - thoracic aorta – a reduction of blood flow velocity in the phase of late diastole to zero and negative values.

**Conclusions.** Doppler investigation in obstetric practice is of great diagnostic value in preclinical diagnosis of preeclampsia, providing quick and non-invasive assessment of the extent of placental circulation and fetal hemodynamics impairment.

**Tzybulnik V.A.**

**RELATIONSHIP BETWEEN  $\Omega$ 3-UNSATURATED FATTY ACIDS INTAKE  
AND ENDOTELIN EXPRESSION IN PLACENTA**

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**Department of Obstetrics and Gynecology №1**

**Introduction.** The role of changes in cardiovascular system (CVS) which should provide all necessary supply for advancing pregnancy is well-known. Maternal organism should acquire additional blood amount through general vasodilatation due to new hormonal balance which shift ratio of prostacyclin/tromboxan production by endothelium in favour of former. CVS diseases (CVD) either overt or occult may prevent from these natural changes and lead to hypovolemia which is the underlying cause of hypertensive disorders induced by pregnancy (HIP) and retardation of fetus growth (FGR).  $\Omega$ 3-unsaturated fatty acids (UFA) play important role in functional capacity of endothelium and metabolism of prostacyclins. This study assessed warrant for supplementary intake UFA by women of high risk of pregnancy complications before planning pregnancy and throughout the first trimester that aimed at prevention from these complications.

**Materials and methods.** There were 39 women of high risk of pregnancy complications (CVD, age, HIP and FGR in past medical history) enrolled in the study and divided into two groups respective of supplementary intake only folic acid versus complex folic acid and UFA which had started before planning pregnancy and continued throughout



first trimester. The targets for evaluation were clinical signs, Doppler and ultrasound assessment of fetus well-being and placenta, pregnancy outcomes. Furthermore, the samples of placenta obtained after delivery underwent immunohistochemical investigation of endotelin expression by means of MCA.

**Conclusions.** The study elicited distinctive significant trend towards reduction of HIP and FGR, better value of Doppler investigation of fetoplacental complex, improved pregnancy outcomes, less extent of endotelin expression in placenta among women who had been administered UFA.

**Vygovskaya L. A., Blagoveshchenskiy E. V., Demidenko A. D., Vorona A. S.,  
Mironchuk E. I., Dyakova I. V.**  
**LAPAROSCOPY AS A METHOD FOR DIAGNOSIS AND TREATMENT OF  
GYNECOLOGIC ABNORMALITIES**

**Kharkiv national medical university, Kharkiv, Ukraine  
Department of Obstetrics, Gynecology and Pediatric Gynecology  
Scientific supervisor – Doctor of Medical Science I. A. Tuchkina**

**Introduction.** The experience which has been gained over the last 10 years is indicative of the efficiency and safety of laparoscopic surgery in general practice of gynecologists. Laparoscopic treatment in acute gynecological urgent cases is more preferable in comparison with open laparotomy (S. V. Shtyryov, 2006). At present laparoscopy is employed in diagnosis and treatment of ectopic pregnancies, in rupture and torsion of various ovarian cysts. Laparoscopy is frequently performed in cases when diagnosis is not fully determined. Laparoscopy is an operation of choice for young women who want to preserve their reproductive performance.

**Material and methods.** In 2013 specialists of gynecological department of Kharkiv State Maternity Hospital No.1 carried out 212 gynecological operations. Of them 107 patients underwent laparoscopic operations, which comprises 50,5% from the total number of gynecological operations, performed in this maternity hospital. Laparoscopic operations were carried out in 28 cases of ectopic pregnancy, 45 cases of adnexa disorders, 5 cases of conservative myomectomy, 29 cases of infertility. Average age of the patients comprised  $31 \pm 0,5$  years (from 18 to 42 years). Every other woman had inflammatory diseases in her past history. All the women underwent ultrasound examination of pelvic organs with the employment of transvaginal sensory device (4,0-9,0 MHz) of Medison 6000 CMT unit (Southern Korea). The patients with suspected ectopic pregnancy underwent HCG test. Diagnostic culdocentesis was carried out in 41 patients. While performing laparoscopic intervention following the abdominal organs examination the doctors assessed the presence, location and character of exudate, proceeded to a detailed examination of appendix and after acute surgical disorder exclusion explored internal reproductive organs. To provide proper examination the woman assumed Trendelenburg position. Then two troacar for manipulators, coagulator and aspirator were inserted, abdominal cavity was drained giving the onset to the main stage of intervention. Small pelvis drainage was carried out for the main indications.

**Results.** The employment of minimally invasive methods helps to perform a more detailed examination in the beginning of the operation, carry out more thorough decontamination of the abdominal organs without causing major injuries in comparison with laparotomic operations. This results in a reduction of hospital stay duration from 7 to 3



days and a decrease in the degree of operation injury and the amount of postoperative complications, such as pus formation in postoperative wounds. Recovery duration in acute inflammatory gynecological abnormalities decreased to 3 – 7 days, wound infections and other complications were not observed. Cosmetic results following laparoscopic operations were also improved.

**Conclusion.** Thus, laparoscopy makes it possible to determine the exact diagnosis and choose highly effective therapeutic approach for the management of gynecological abnormalities. It is regarded as an alternative to the traditional methods employed in the treatment of gynecological complications and helps to decrease hospital stay of the patients.

**Vygovskaya L. A., Rogachova N. Sh, Reznik M. A., Vygovskiy O. O., Malyar O. V., Sribna P. V., Solyanik V.A.**

**POSTOVARIECTOMIC MENOPAUSE COURSE PECULIARITIES.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Obstetrics, Gynecology and Children Gynecology**

**Academy of Postgraduate Education , Kharkiv, Ukraine**

**Scientific supervisor – Doctor of Medical Science I. A. Tuckina**

**Introduction.** Menopause (M) and related changes in the body are among the main factors that determine the quality and expectancy of life for women. In age-related and surgical (postovariectomic) menopause (POM) changes in the hypothalamic-limbic regulation, which play the leading role, cause disturbances in the functioning of the autonomic nervous system (ANS) in response to changes in the hormonal regulation of the organism. Disturbances of bone and joint system in menopausal women have become of special significance recently. It is connected with a number of musculoskeletal diseases manifestation in old age, such as osteopenic syndrome (OPS) and osteoporosis which are regarded as the most prevalent.

**The aim** of this study is to identify the peculiarities of POM course and its connection with the diseases of locomotor apparatus.

**Materials and methods.** The study involved 116 women aged 40-50 years, who underwent the examination and treatment in Kharkiv maternity hospital No.1. The women were divided into clinical groups: I - the main group included 68 women with POM; II - the control group comprised 48 women with physiological M. M duration in the groups ranged from 6 months to 3 years. Women involved in this study had not undergone hormone replacement therapy previously. Hormonal balance was determined by the content of luteinizing (LH) and follicle-stimulating (FSH) hormones, estradiol (E), progesterone (P) and testosterone (T), mineral metabolism was assessed by determining the level of total calcium (Ca), phosphorus (Ph) and magnesium (M) in blood serum. All the patients presenting with musculoskeletal impairments, consulted an orthopedist-traumatologist. The condition of the bone and joint system was examined by x-ray and densitometric methods.

**Results.** Surgical excision of the ovaries is accompanied by the development of postovariectomic syndrome (POS), which is manifested in the form of neurovegetative (35%), psycho-emotional (40%) and metabolic-endocrine disorders (25%), with the degree of manifestation which is largely determined by the duration of the postoperative period. The main complaints of the women following ovariectomy were headache, sleep disturbance, irritability, increased blood pressure, hot flashes, pain in the back, which



intensified after physical exertion. Hormonal study identified a low level of E ( $26.9 \pm 3.8$  nmol/ml), P ( $0.78 \pm 0.2$  nmol/ml), T ( $1.1 \pm 0.2$  nmol/ml), and increased levels of FSH ( $110.0 \pm 5.0$  mIU/ml), LH ( $81.0 \pm 7.3$  mIU/ml) in women with POS. The patients with physiological M the levels were as follows: E ( $33.9 \pm 2.0$  nmol/ml), P ( $1.17 \pm 0.4$  nmol/ml), T ( $0.4 \pm 1.8$  nmol/ml), FSH ( $51.0 \pm 5.3$  mIU/ml), LH ( $32.5 \pm 10.8$  mIU/ml). The average level of hormones concentration significantly differed in women of the clinical groups under investigation, which indicates that the preservation of the ovarian tissue helps to maintain hormonal homeostasis. A significant decrease in mineral metabolism (1<sup>st</sup> clinical group - Ka ( $2.11 \pm 0.01$  mmol/l), Ph ( $0.87 \pm 0.01$  mmol/l), M ( $0.81 \pm 0.01$  mmol/l), 2<sup>nd</sup> clinical group - Ka ( $2.30 \pm 0.01$  mmol/l), Ph ( $1.00 \pm 0.01$  mmol/l), M ( $0.85 \pm 0.01$  mmol/l) in women of the groups under investigation, X-ray data and densitometric research among the women with musculoskeletal impairments enabled the orthopedists to diagnose the signs of osteoporosis and osteopenia in 78% of women from the 1<sup>st</sup> clinical group and 57% of women from the 2<sup>nd</sup> clinical group, 12% in the 1<sup>st</sup> clinical group, 9% in the 2<sup>nd</sup> clinical group.

**Conclusions.** Women with postovariectomic menopause develop an increase in POS incidence and musculoskeletal diseases in comparison to women with age-related menopause. The presence of ovarian tissue is an important factor in maintaining hormonal homeostasis and prevention of the development of POS and its complications.



## PEDIATRICS

**Adeyemi Ayodeji Alexander<sup>[1]</sup>, Shevchenko Irina Gennadyevna<sup>[2]</sup>**  
**RARE CONGENITAL DISEASES IN PEDIATRIC PRACTICE**  
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**Volgograd State Medical University, Volgograd, Russia.<sup>[2]</sup>**

**Introduction:** The problems that occur by the rising incidence of some congenitally acquired disorders brings up the question of how capable doctors really are at rapid and accurate diagnosis, prevention and treatment if possible. This article aims to enlighten medical and non-medical personnel on some of the encountered congenitally acquired disorders in pediatric practice. The disorders described here are generally rare, but they do exist and it is necessary to know about them.

**Results.** Rubinstein–Taybi syndrome: also known as broad thumb-hallux syndrome or Rubinstein syndrome, is a condition characterized by short stature, moderate to severe learning difficulties, distinctive facial features, and broad thumbs and first toes. Other features of the disorder vary among affected individuals. People with this condition have an increased risk of developing noncancerous and cancerous tumors, leukemia, and lymphoma. This condition is sometimes inherited as an autosomal dominant pattern and is uncommon, many times it occurs as a de novo (not inherited) occurrence, and it occurs in an estimated 1 in 125,000-300,000 births. Pierre Robin syndrome: is a congenital condition of facial abnormalities in humans. PRS is a sequence, i.e. a chain of certain developmental malformations, one entailing the next. The 3 main features are cleft palate, micrognathia (a small jaw) and glossoptosis (airway obstruction caused by backwards displacement of the tongue base). A genetic cause to PRS was recently identified. Pierre Robin sequence may be caused by genetic anomalies at chromosomes 2, 11, or 17. Sturge–Weber syndrome: sometimes referred to as encephalotrigeminal angiomas, is a rare congenital neurological and skin disorder. It is one of the phakomatoses and is often associated with port-wine stains of the face, glaucoma, seizures, mental retardation, and ipsilateral leptomeningeal angioma. It is characterized by abnormal blood vessels on the brain surface. Normally, only one side of the brain is affected. It is an embryonal developmental anomaly resulting from errors in mesodermal and ectodermal development. Unlike other neurocutaneous disorders (phakomatoses), Sturge-Weber occurs sporadically (i.e., does not have a hereditary etiology). It is caused by a somatic activating mutation occurring in the GNAQ gene. Smith–Lemli–Opitz syndrome: is an inborn error of cholesterol synthesis. It is an autosomal recessive, multiple malformation syndrome caused by a mutation in the enzyme 7-Dehydrocholesterol reductase, or DHCR7. It causes a broad spectrum of effects, ranging from mild intellectual disability and behavioural problems to lethal malformations. Prader–Willi syndrome: is a rare genetic disorder in which seven genes (or some subset thereof) on chromosome 15 (q 11–13) are deleted or unexpressed (chromosome 15q partial deletion) on the paternal chromosome. Characteristic of PWS is "low muscle tone, short stature, incomplete sexual development, cognitive disabilities, problem behaviors, and a chronic feeling of hunger that can lead to excessive eating and life-threatening obesity. The incidence of PWS is between 1 in 25,000 and 1 in 10,000 live births. Angelman syndrome: is a neuro-genetic disorder characterized by severe intellectual and developmental disability,



sleep disturbance, seizures, jerky movements (especially hand-flapping), frequent laughter or smiling, and usually a happy demeanor. Noonan syndrome: is a relatively common autosomal dominant congenital disorder that affects both males and females equally. It used to be referred to as the male version of Turner's syndrome. However, the genetic causes of Noonan syndrome and Turner syndrome are distinct. The principal features include congenital heart defect (typically pulmonary valve stenosis) also ASD, hypertrophic cardiomyopathy, short stature, learning problems, pectus excavatum, impaired blood clotting, and a characteristic configuration of facial features including a webbed neck and a flat nose bridge. It is a RASopathy, as the syndrome is in the family of RAS-MAPK pathway disorders. Klippel–Feil syndrome: is a rare disease characterized by the congenital fusion of any 2 of the 7 cervical vertebrae. The syndrome occurs in a heterogeneous group of patients unified only by the presence of a congenital defect in the formation or segmentation of the cervical spine. Klippel–Feil syndrome can be identified by shortness of the neck. Those with the syndrome have a very low hairline and the ability of the neck to move is limited. Waardenburg syndrome: is a rare genetic disorder most often characterized by varying degrees of deafness, minor defects in structures arising from the neural crest, and pigmentation anomalies. Disruptions in myogenesis, particularly mutations in Pax3, can cause Waardenburg syndrome I and III. Bloom–Torre–Machacek syndrome: is a rare autosomal recessive disorder characterized by short stature and predisposition to the development of cancer. Cells from a person with Bloom syndrome exhibit a striking genomic instability that includes excessive homologous recombination.

**Conclusion:** The discussion of these disorders has reinforced the fact that medical personnel should be well informed about these disorders and pediatricians should work hand in hand with geneticists to give proper advice for the management of these conditions.

**Balushchak I.A., Kondratova I.U.**

**EFFICIENCY OF APPLICATION NONINVASIVE ARTIFICIAL  
PULMONARY VENTILATION IN CHILDREN OF WEIGHT OF A BODY <1500 G  
Kharkiv national medical university, Kharkiv, Ukraine  
Department of Pediatrics № 1 and Neonatology**

**Introduction:** According to World Health Organization the population frequency of preterm birth is 10 - 12% (2012). In Ukraine it is 6 - 7% (2011 - 2012). In Kharkiv Regional Perinatal center it is in 2012 -10%; in 2013 -10,5%. 70% of cases of neonatal mortality comes to newborns with the weight of a body less than 1500 g at a birth.

**The purpose** is to estimate efficiency of noninvasive artificial pulmonary ventilation in premature infants with the weight of a body less than 1500 g

**Material and methods:** 35 premature infants of gestational age from 22 till 32 weeks and of weighing of the body from 550 g up to 1500 g have been inquired, including 15 infants with extremely low birth weight (ELBW, group I) and 20 babies with very low birth weigh (VLBW , group II). Both groups were divided into two subgroups due to the starting respiratory therapy technique at birth: the traditional artificial lung ventilation (AVL) and noninvasive AVL.

**Results:** At birth the newborns of both groups had the main syndrome defining the condition severity, it was the respiratory compromise caused by the respiratory distress syndrome (RDS) of the IIIrd or IVth degree. On the basis of the data of neurosonography and magnetic resonance imaging procedure during the first 3 days of life intraventricular



haemorrhages was diagnosed in 2 children (13 %) from group I and for 1 child (5%) from group II, early neonatal sepsis was diagnosed in 4 premature children (20 %) from group II due to the clinicodiagnostic laboratory data. The fetomaternal disease took place in all examined pregnant women, the mothers of 8 children with ELBW (53 %) had heavy extragenital pathology, the mothers of 13 children with VLBW (65 %) had severe obstetric pathology (premature detachment of placenta – 35 %, premature rupture of fetal membranes – 20 %, severe eclampsia – 10 %). All premature newborns suffered from chronic prenatal hypoxaemia: 12 (80 %) newborns of group I and all children of group II had the Apgar score estimation from 3 to 6 points, 3 (20 %) premature newborns of group I had it in combination with acute asphyxia (the Apgar score estimation <3 points). 14 (96 %) newborns with ELBW and 12 (59 %) with VLBW received a surfactant, 7 (50 %) of them from group I and 8 (41 %) from group II received it with the INSURE method. 8 (53 %) newborns of group I and 8 (35 %) of group II received starting ventilation, traditional AVL. 7 patients with ELBW (47 %) received noninvasive ventilation at once, thus none of them needed an intubation during the first five days of life. In ELBW group starting noninvasive AVL was made for 12 premature newborns (55 %), 2 of them (18 %) needed the intubation during the first 5 days, mainly due to the development of early neonatal sepsis clinics. In both groups among the newborns who were on traditional ventilation, many of them had not received prenatal prevention (37,5 % and 25 %, respectively) or had received an incomplete course (25 % in each group). The frequency of the development of intra ventricular haemorrhages, bronchopulmonary dysplasia, necrotizing enterocolitis among premature newborns with ELBW (37,5 %, 50 %, 50 %, respectively) and VLBW (12,5 %, 25 %, 37,5 % respectively) was significantly higher in children who needed intubation, traditional ventilation and who had not received prenatal glucocorticoid prevention. The usage of noninvasive ventilation does not increase the air leak syndrome frequency in newborns with ELBW and VLBW at birth. Dependence on oxygen at the age of 28 days of life, duration of staying at the intensive therapy unit and duration of hospitalization is significantly higher in the children treated with traditional AVL in both groups. The survival rate by the 7th day of life and the day of discharge from the hospital is significantly higher among the premature infants, who were on noninvasive ventilation in both groups (100 % and 71 %; 100 % and 91,6 % respectively).

**Conclusions:** The usage of the noninvasive ventilation technique allows to increase survival rate and to reduce the frequency of complications during the treatment of RDS and nursing premature with ELBW and VLBW at the birth.

**Chernenko L.N., Senatorova G.S., Shypko A.F.**

**CONTENT OF IL-1 $\beta$  AND TNF- $\alpha$  IN INDUCED SPUTUM IN CHILDREN WITH BRONCHOPULMONARY DYSPLASIA**

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**Department of Pediatrics No.1 and Neonatology**

**Introduction.** During last years the frequency of bronchopulmonary dysplasia (BPD) has been increased due to the improved quality of nursing and respiratory support in preterm infants. BPD is a variant of chronic inflammation appeared in morphologically altered structures of the bronchopulmonary system. A key role in the development of the inflammatory response are interleukin-1 $\beta$  (IL-1 $\beta$ ), tumor necrosis factor- $\alpha$  (TNF- $\alpha$ ).



However, there is no data of these cytokines level in induced sputum, given the postnatal development of the bronchopulmonary system. In addition, long-term cytokine circulation and hyperproduction has adverse prognostic significance.

**Aim.** To assess the level of IL-1 $\beta$  and TNF- $\alpha$  in induced sputum in children with bronchopulmonary dysplasia.

**Material and methods.** The study involved 68 children aged from 1 month to 3 years, including 33 patients with the classical form of the BPD (group 1), 18 - a new form (group 2), 17 - BPD of full-term newborns (third group). The control group includes 19 apparently healthy children. Sampling of 0.5 ml of induced sputum was performed in all patients with BPD on an empty stomach after inhalation of saline outside the main activity of the disease. Statistical analysis was performed with the statistical software package Statistica 7.0.

**Results.** The criterion Kraskla-Wallis test is significant for both levels of interleukin-1 $\beta$ , and for the level of TNF- $\alpha$ . In assessing the pairwise comparison - U-Mann-Whitney non-significant. This entitles you to claim that the statistical characteristics of indicators of various groups was not statistically different among themselves, and the level of activity of the investigated pro-inflammatory cytokines was significantly increased compared with the control group and did not depend on the affiliation of the child with BPD to a particular group. The lack of statistically significant differences of levels IL-1 $\beta$  and TNF- $\alpha$  in children with various forms of BPD emphasizes that the disease is chronic in nature, due to morphological changes in the bronchopulmonary system are superimposed chronic inflammatory process.

**Conclusions.** A significant increase of proinflammatory cytokines levels in induced sputum in children with bronchopulmonary dysplasia indicates a chronic inflammatory airway disease, regardless of form.

**Dryl I.S., Kolibaeva T.F. \*, Muratova K.G. \*, Yakymenko N.A.\***  
**THE CARDIAC AND RENAL CHANGES IN CHILDREN WITH**  
**PROGRESSIVE CHRONIC KIDNEY DISEASE**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Pediatrics No.1 and Neonatology**  
**Regional Clinical Hospital \*Kharkiv (Ukraine)**

**Introduction.** Today the methods of renal replacement therapy prolonged life expectancy of children with chronic renal failure (CRF). However, mortality in CRF kept by the progression of cardiovascular complications.

**Aim** of this work was to identify major changes of renal and cardiac parameters in children with different stages of chronic kidney disease (CKD).

**Material and methods.** The study involved 71 children 2 - 17 years (mean age  $11,2 \pm 3,4$  y). The average duration of disease was  $6,02 \pm 3,5$  years. All children performed nephro-urological examination with definition of CKD stage (according to GFR, tubular function and concentration), determination of renal blood flow and cardiac activity (data of Doppler and ECG).

**Results.** Depending on the degree of renal function were examined divided into 5 groups. The first group included 11 children with CKD without CRF, the second - 16 children with CKD IIst. (tubular CRF), the III group - 27 children with CKD IIst. (compensated CRF), the IV group - 13 children with CKD IIIst. (subcompensated CRF), the V group - 4 children with CKD IVst. (decompensated CRF).  $71,5 \pm 18,4\%$  children of 1st



group don't have pathological changes in ECG, but  $28,4 \pm 18,4\%$  children have a sinus bradyarrhythmias. 56 ( $78,8 \pm 4,8\%$ ) children have been identified the abnormal left ventricular chord and / or MVP without regurgitation, all children have been registered normal ejection fraction of left ventricle. In any child doesn't have renal vascular circulation. In  $27,2 \pm 14 \%$  of children of second group was identified sinus tachycardia (heart rate  $> 95$ - pertsentelya), in  $25,0 \pm 13,0\%$  - a reduction of the interval RQ ( $< 0.1$  s ), in  $16,6 \pm 11, 2\%$  - lengthening the interval RQ ( $> 0.20$  s). In  $18,5 \pm 9,07\%$  of children were established a minimum flow of regurgitation at the mitral valve. One-third, in  $37,5 \pm 18,2\%$  of children were found asymmetry in renal blood flow with little ischemia, only  $50 \pm 18,8\%$  of children had satisfactory performance and adequate renal perfusion. In  $27,2 \pm 14,0\%$  patients of group III revealed sinus tachycardia, at  $36,3 \pm 15,2\%$  - lengthening the interval RQ ( $> 0.20$  ). In  $53,8 \pm 14,3\%$  of children found regurgitation of blood flow in the right part of heart, namely  $38,4 \pm 14,0\%$  of transpulmonary and  $15,3 \pm 10,4\%$  of tricuspid valves.  $18,5 \pm 7,6\%$  of children had a decrease in ejection fraction and myocardial hypertrophy. Satisfactory renal bleed had only  $14,2 \pm 9,7\%$  of children. Other children were quite diverse violations as hypoperfusion, hiperperfusion, asymmetry of blood flow, increased peripheral vascular resistance index. Patients IV and V groups had similar changes in cardiac rhythm as sinus bradycardia (heart rate  $< 5$  pertsentelya ),  $28,5 \pm 18,4\%$  and  $66,6 \pm 33,3\%$  respectively, violation of precardiac conductivity with shortening RQ ( $< 0.1$  s ) in  $42,8 \pm 20,2\%$ , and its extension in  $28,5 \pm 18,4\%$  ( $> 0,20$  sec ) cases. As the progression of CKD in children IV - V groups are increasingly faced myocardial hypertrophy in  $35,2 \pm 11,9\%$  of children, dilatation cameras -  $17,6 \pm 9,5\%$ , more stable at  $57,1 \pm 13,7\%$  of cases have been registered regurgitation in the right chambers of the heart. Decrease of ejection fraction was performed in  $29,4 \pm 11,3\%$  children.

**Conclusions.** Initial stages of CKD are characterized by a compensatory tachycardia with mild conduction; single minimal change of morphology of the heart. As the progression of CKD increases the frequency of atrioventricular conductivity violations, increasing dilation of the heart chambers. Indicators of renal blood flow had variable changes. All children have been sharp decline in circulation in end-stage of CKD.

**Feofanova E.Y., Boychenko A.D.**

### **CARDIOVASCULAR SYSTEM CONDITIONIN NEWBORNS SUFFERED FROM ASPHYXIA**

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Department of Paediatrics No. 1 and Neonatology**

**Introduction:** Early diagnosis and well-timed correction of identified pathological changes of the heart in infants suffered from asphyxia is an important factor in reducing the incidence and the severity of cardiovascular disease in older children.

**Aim:** to improve early cardiovascular abnormality diagnosis in infants suffered from asphyxia in the early neonatal period.

**Materials and methods:** The 20 newborns (boys - 55%; girls - 45%) of gestational age  $34,3 \pm 2,7$  weeks, who had intranatal asphyxia, were observed. The control group was made of 20 neonates from 39 till 40 weeks gestation who had no somatic and neurological complications in prenatal and early neonatal period.



**Results:** 80.0% of newborns in the first group in the early neonatal period ( $p \leq 0,05$ ) had a systolic murmur in mitral and/or tricuspid valves region, a pallor was observed in 70.0% ( $p \leq 0,05$ ), tachypnea was in 35.0% of patients, cyanosis or acrocyanosis was diagnosed in 35.0% of newborns, skin marbling was observed in 30.0% of children. The main cardiovascular abnormalities were heart rhythm disorders in 25.0% of patients, the second heart sound emphasis in the pulmonary valve region was in 20.0%, decreased heart sounds was observed in 15.0% of newborns. Cardiac hemodynamics abnormalities in infants suffered from asphyxia were presented as left ventricle dilatation in 20.0%, as right ventricle dilatation in 70.0% ( $p \leq 0,05$ ), as dilatation of the left atrium in 35.0% of children, as increased pulmonary artery pressure in 70.0% ( $p \leq 0,05$ ), as pulmonary valve regurgitation in 65.0% ( $p \leq 0,05$ ) patients, as decreased myocardial contractility in 15.0% of patients. Normokinetic hemodynamic type was detected in 55.0% of children, hyperkinetic was detected in 10.0% of patients, hypokinetic was detected in 35.0% of infants ( $p \leq 0,05$ , compared with the control group). The hypokinetic type is a risk factor in the of progression of myocardial dysfunction. Systolic dysfunction was diagnosed in 40.0% and diastolic dysfunction was detected in 45.0 % of patients suffered from asphyxia. Diastolic dysfunction, presented as an abnormal relaxation, was detected in 20.0% of cases, diastolic dysfunction, presented as an unspecified type, was detected in 25.0% of newborns. Diastolic dysfunction could be an early marker of heart failure developing risk.

**Conclusions:** 1. Systolic dysfunction was diagnosed in 40.0% and diastolic dysfunction was detected in 45.0 % of patients suffered from asphyxia. 2. Normokinetic type of central hemodynamics was diagnosed in 55% of patients, hyperkinetic was diagnosed in 10%, hypokinetic was diagnosed in 35% ( $p \leq 0,05$ ) newborns. Normokinetic type of central hemodynamics is a progression of myocardial dysfunction risk factor. 3. Echocardiography is an essential method for diagnosis of myocardial dysfunction in the early neonatal period.

**Khomenko M.A., Strelkova M.I, Omelchenko O.V**

**RARE CLINICAL CASE:SYNDROME HHH**

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**Department of Pediatrics No. 1 and Neonatology**

**Introduction.** Syndrome HHH (hyperornithinemia, hyperammonemia, homocitrullinuria) is an orphan hereditary disease associated with defect of ornithine transporter and manifested by high level of ammonium and ornithine ions in blood along with increased renal excretion of homocitrulline. The disease is caused by a genetically determined defect of ornithine transporter. Syndrome is characterized by variable age of onset: from the neonatal period to 18 years. The disease is paroxysmal. Early symptoms are often not specific, therefore they cannot be easily recognized. Initial clinical symptoms and regular attacks of illness are provoked by infection, anesthesia, artificial feeding, high-protein food.

**Purpose.** Improving diagnostic of orphan diseases.

**Material and methods.** Clinical observation of the 4 y.o. child S. with the syndrome HHH. Polymorphism in a system of genes of a folate cycle. Hyperhomocysteinemia. Metabolic encephalopathy, the III level brain coma.

**Results.** Justification of diagnosis: frequent vomiting, weakness, lethargy, delay in psycho-speech development, muscle twitching, somnolence episodes; anesthesia and faults



in the diet in anamnesis; family history (father has unwarranted aggression periods, rapid attention depletion, hyperactivity); vestibular-ataxic syndrome; attention deficit hyperactivity disorder; liquor-venous discirculation; increase of cytolysis in 7 times, 10-times ammonium increase in blood, 1,5-times ornithine increase, 1,2 times citrulline increase; progressive course of the disease; multi-organ failure development.

**Conclusions.** Hereditary metabolic disorders must be excluded while identifying the neurological symptoms of the unknown etiology. Patients should be examined comprehensively involving geneticists. That helps to diagnose hereditary metabolic disorders on early stages, and therefore, prevent complications.

**Koval V.A., Tsymbal V.N., Makeeva E.A.**

**PHYSICAL DEVELOPMENT AND ADAPTATION OPPORTUNITIES OF  
CARDIOVASCULAR SYSTEM TO PHYSICAL ACTIVITY OF TEENAGERS**

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**Department of Paediatrics No. 1 and Neonatology**

**Introduction.** It is known that diseases of heart and vessels of adults originate in childhood. Disorders of adaptation of cardiovascular system (CVS) to physical activity indicate prepathological states and pathological changes of heart, early diagnostic of which is important in childhood.

**Purpose:** to detect risk factors of formation of cardiac pathology and adaptation possibilities of CVS to physical activity of teenagers by studying anthropomorphic measurements, main parameters of vital functions, analysis of results of Ruffier's test.

**Material and methods.** 94 teenagers, pupils of 9<sup>th</sup> forms (43 boys and 51 girls) 14-15 years, 42 of which live in city (Ordzhonikidzevskiy district, Kharkiv) and 52 of which live in Kharkiv region have been examined. Studying of anthropomorphic measurements and parameters, such as body mass (M, kg), standing height (H, m), body mass index (BMI), body surface area (BSA, sq. m), chest circumference (ChC, cm), waist circumference (WC, cm), hip circumference (HC, cm), mid-arm circumference (MAC, cm), thigh circumference (ThC, cm), shin circumference (ShC, cm), skinfold thickness under scapula (STS, mm), skinfold thickness over biceps (STB, mm), skinfold thickness over triceps (STT, mm), skinfold thickness in ileocecal region (STI, mm) with following calculation of total skinfold thickness (TST, mm). Percentage of fat in organism (% of fat) has been assessed for studying of body structure. Vital functions, such as respiratory rate (RR), heart rate (HR), systolic blood pressure (SBP), diastolic blood pressure (DBP) have been studied. Ruffier's test have been held for studying of functional state and adaptation opportunities of CVS to physical activity.

**Results.** It has been established, that anthropomorphic measurements and parameters of girls and boys that live in districts of region don't have significant changes from normalized ones (all  $p > 0.05$ ). However, they have significant sexual differences: girls have significantly smaller parameters, such as M, H, BSA, WC, WC/HC, than boys, and they have significantly larger STB, STT, STS, STI, TST, % of fat (all  $p < 0.05$ ). Obtained results reflect normal physiological sexual differences of physical development of children, which become significant in pubescence. Changes between boy and girls of the city have tendency to decrease. Boys have statistically significant larger value of STB than girls ( $p < 0.05$ ), but there are no sexual differences in parameters, such as STT, STS, STI, TST, % of fat (all



$p > 0.05$ ). Boys, that live in village have significant larger H ( $p < 0.05$ ) and ShC ( $p < 0.05$ ). While there is no difference in M ( $p > 0.05$ ), boys from village have significantly smaller values of STB, STT, TST, % of fat (all  $p < 0.05$ ). Specific gravity of muscular component of body mass of boys from the city respectively decreases, and specific gravity of fat component increases. It has been confirmed by the fact that values of TST ( $p < 0.05$ ), % of fat ( $p < 0.05$ ) of boys from the city are significantly larger than normalized parameters. While comparison it has been detected that parameters of vital functions of girls doesn't vary with inhabitancy. (all  $p > 0.05$ ). Boys that live in the city have increased parameters of SBP ( $p < 0.05$ ) and DBP ( $p < 0.05$ ), comparatively with both appropriate parameters of male teenagers from village and normalized ones. Boys that live in the city have below the average or low level of adaptation of CVS to physical activity more often than girls and boys of the same age from village. There is a correlation between results of Ruffier's test and % of fat ( $r = +0.65$ ,  $p < 0.05$ ) and body mass index ( $r = +0.53$ ,  $p < 0.05$ ) that confirms the influence of overweight on worsening of functional state of CVS.

**Conclusion.** Thereby, teenagers with overweight, increased blood pressure and/or decreased level of adaptation of CVS to physical activity form a risk group of formation of cardiac pathology and that's why they should be under supervision.

**Kryvorotko D., Bendzar O.**

**THE NOWADAYS CLINICAL-PARACLINICAL FEATURES OF  
PNEUMONIA IN NEWBORNS**

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**Department of Propaedeutic of Pediatrics No. 2**

**KZOZ " Regional Pediatric Clinical Hospital № 1", Kharkiv, Ukraine .**

**Aim:** To determine the clinical and paraclinical features of pneumonia in newborns today.

**Material and methods.** The research was conducted through a comparative analysis of clinical and paraclinical information of newborns with pneumonia in 2009-2011 (51 patients -study group) and in 1999-2000 (23 children - control group). The clinical survey conducted by routine methods. The paraclinical data includes the analyze the chest organs X-rays, the bacteriological examination of mucus from the tracheobronchial tree with the definition sensitivity of microbial flora. The processed of results was made by nonparametric statistical methods.

**Results.** The instructure of pneumonia showed the tendency to decrease the community- acquired pneumonia today from  $39,1 \pm 10,2\%$  to  $21,6 \pm 5,8\%$  ( $p > 0.05$ ), and increased the role of ventilation pneumonia from  $30,4 \pm 9,6\%$  to  $45,1 \pm 7,0\%$  ( $p > 0.05$ ) today. The densities birth did not change significantly ( $30,4 \pm 9,6\%$  compared to  $33,3 \pm 6,6\%$ ;  $p > 0.05$ ). The duration of the auscultatory changes in the respiratory system was  $17,0 \pm 1,7$  and  $17,3 \pm 1,8$  days ( $p > 0.05$ ) in the study and control groups accordingly. Lowering the shorter duration of mechanical ventilation -  $12,9 \pm 2,4$  days and  $9,3 \pm 1,1$  days ( $p > 0.05$ ), the number of patients with a prolonged course were  $21,7 \pm 8,6\%$  and  $11,8 \pm 4,5\%$  ( $p > 0.05$ ), the hospital days included  $31,2 \pm 3,2$  and  $28,7 \pm 3,3$  ( $p > 0.05$ ) in 2000 and 2010-2011. The changes of mucus from the tracheobronchial tree of microbial landscape : in addition to common pathogens *Ps. Aeruginosa* and *St. aureus*, in 2000, 20% of patients allocated *K. pneumonia* (2010-2011 y - 0 %) and in no case was *A. salkoaceticus* (2010-2011 was - 38.4 %).



**Conclusions.** Found the probable differences the microbial flora of the mucus from the tracheobronchial tree and the trend to change the clinical course of pneumonia in the last 10 years.

**Kryvorotko D., Bendzar O.**

**THE MODERN CLINICAL-PARACLINICAL FEATURES OF PNEUMONIA  
IN NEWBORNS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Propaedeutic of Pediatrics No. 2**

**KZOZ " Regional Pediatric Clinical Hospital № 1", Kharkiv, Ukraine**

**Aim:** To determine the modern clinical and paraclinical features of pneumonia in newborns .

**Material and methods.** The research was conducted through a comparative analysis of clinical and paraclinical information of newborns with pneumonia in 2009-2011 (51 patients -study group) and in 1999-2000 (23 children - control group). The clinical survey was conducted by routine methods. The paraclinical data included the analyses the chest X-rays, the bacteriological examination of mucus from the tracheobronchial tree with the definition sensitivity of microbial flora. The processed of results was made by nonparametric statistical methods.

**Results.** The analysis of pneumonia structure showed the tendency to decrease the percent of community- acquired pneumonia from  $39,1 \pm 10,2\%$  to  $21,6 \pm 5,8\%$  ( $p > 0.05$ ), and increased the role of ventilation pneumonia from  $30,4 \pm 9,6\%$  to  $45,1 \pm 7,0\%$  ( $p > 0.05$ ). The frequency of congenital pneumonia was not changed ( $30,4 \pm 9,6\%$  compared to  $33,3 \pm 6,6\%$ ;  $p > 0.05$ ). The duration of the auscultator changes in the respiratory system was  $17,0 \pm 1,7$  vs and  $17,3 \pm 1,8$  days ( $p > 0.05$ ) in the study and control groups accordingly. Duration of lung mechanical ventilation were -  $12,9 \pm 2,4$  days vs and  $9,3 \pm 1,1$  days ( $p > 0.05$ ), the number of patients with a prolonged pneumonia course were  $21,7 \pm 8,6\%$  vs and  $11,8 \pm 4,5\%$  ( $p > 0.05$ ), the number of bed days were  $31,2 \pm 3,2$  and vs  $28,7 \pm 3,3$  ( $p > 0.05$ ) in 1999-2000 vs 2010-2011. The changes of tracheobronchial tree microbial landscape were included presence of *A. Calcoaceticus* in 38,4 % (vs 0% in 1999-2000 yrs.) and absence of *K. Pneumonia* (vs 20%) besides common pathogens (*Ps. Aeruginosae*, *St. Aureus*).

**Conclusions.** The reliable difference of tracheobronchial tree microbial flora and tendency to clinical course changes were found in newborn with pneumonia in the last 10 yrs.

**Lebedinska T., Senatorova A.S., Telnova L.G., Logvinova O.L.**

**THE ROLE OF 1067INSG OF MATRIX METALLOPROTEINASE 1 IN THE  
FORMATION OF BRONCHOPULMONARY DYSPLASIA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Paediatrics No. 1 and Neonatology**

**Introduction:** Soluble growth factors, cytokines, transcription signal through the implementation of epithelial- mesenchymal program via activation of gene promoters, MMP- 1. 1067insG the mutation of the gene MMP -1 is associated with increased activity of MMP -1, increased epithelial- mesenchymal restructuring and the development of fibrosis, as the basis of bronchopulmonary dysplasia ( BPD ) .



**Aim:** to improve the early diagnosis of the formation of a new form of bronchopulmonary dysplasia by analyzing the polymorphism of MMP -1 (1067insG) in children born prematurely.

**Materials and methods:** The subject of a study of buccal epithelial cells in the presence of a polymorphism of the gene MMP -1 (1067insG) by polymerase chain reaction in 27 patients with a new form of bronchopulmonary dysplasia ( study group) and 20 infants born preterm , but not formed the BPD (group).

**Results:** The gestational age in the examined groups were not significantly different: the main group - 28.7 +1.7 weeks, in the comparison group - 30.2 ± 2.3 weeks ( $p > 0.05$ ). Revealed that 19 (70.3 +8.9 %) children with BPD registered polymorphism of the gene MMP -1 (1067insG), which was significantly different from the detection rate in the comparison group 4 (20 +9.1 %). We prove a significant relationship between the presence of BPD and polymorphism of MMP -1 (1067insG) ( $r = 0,432$ ;  $p < 0.05$ ).

**Conclusion:** polymorphism of MMP- 1 (1067insG) is a marker of epithelial-mesenchymal violation pattern that predisposes to the development of BPD in preterm .

**Ogbe Edward, Adinlewa Emmanuel, Ahusan Abdulla**  
**ROLE OF BOTH PARENTS IN PROVIDING HEALTH CARE TO THEIR**  
**CHILDREN**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Propedeutics Pediatrics No. 1**

**Introduction.** The parenting process includes protecting, nourishing, and guiding the child. It involves a series of interaction between the parents and the child through their life span. Positive parenting is the loving and supportive care provided by both parents. The morale of family relationship, style of upbringing and child's complete recovery depends on an active participation of the father in the family business during child's illness.

**The aim** of this work was to study the influence of the emotional aspects of family relations in the process of treating a sick child during his stay in hospital and determine the degree of participation of father in this process.

**Materials and methods.** By questioning 115 mothers analysis were made based on the following information: whether the father lives with the family, if it was his desire to have this child, the presence of the father during childbirth, his role in the care and upbringing of the child during the first year of life, the emotional reactions of family members concerning the child's illness, the nature of parents' support during the illness of the child, etc. The datas were analyzed on receipt of the letter of disability for child care during the last two years (2012 - 2013 years).A survey performed in accordance with international standards of bioethics.

**Results.** It was found that 18.2% of mothers were raising a child alone, and only 8.7 % of them receive additional financial support from the father. At the same time, 96.4 % of women noted that the unborn child was wanted, and in 56.4 % of cases fathers were in delivery room during the labor. It should be noted that these fathers were much more worried about child's health state and tried to create a favorable psychological conditions. Among the respondents, 76.9% of the mothers noted the active participation and support of the father in child care. 7.6 % of women noted the help of father only in the form of financial aid. 18.6 % of parents carried babysitting by turns. It should be noted that children caring by father were more calm, balanced, they returned to normal sleep better, which will



positively reflected on the process of recovery. As for the full child care in a hospital, when analysis between 2012 and 2013 were compared, fathers who received sick-leave certificates were 1.5 times on the increase. At the same time 68.4 % of mothers noted that the child's illness brings discord in family interaction, and 16.4% indicated that fathers usually blame mothers for the children illness.

**Conclusion.** Study point to the need of taking into account the social and emotional aspects of the family in the treatment of the child, which have a significant impact on the process of sanogenesis of a child. The happiness and harmony between father and mother is a very important prerequisites for a physically fit and mentally happy child. Both the father and mother are essential to the development of a child, and the role of a mother and the role of a father are fundamentally different, yet of equal importance in the life of the child.

**Olkhovskyy E.S.**

### **THE FEATURES OF OBSTRUCTIVE BRONCHITIS OF CHILDREN WITH BRONCHOPULMONARY DYSPLASIA**

**Kharkov National Medical University,**

**Department of Paediatrics No. 1 and Neonatology**

**Introduction.** As a result of improving of methods of intensive care and neonatal respiratory support an actual problem of developing chronic diseases of the bronchopulmonary system (BPS) has become, resulting due to prolonged mechanical ventilation of this children. Acute bronchitis is one of the most common diseases in children. For children of the first years of life is the development of a dangerous obstruction syndrome, aided by anatomical and physiological characteristics of the respiratory system of the child. Therefore, the study of clinical features of obstructive bronchitis in infants with a history which has been established bronchopulmonary dysplasia (BPD) is a actual problem of Pediatrics.

**Aim** - to determine the features of the clinical manifestations of acute obstructive bronchitis (OB) in infants with a history of BPD.

**Materials and methods.** We have examined 46 children under the age of 1 month to 2 years, who were treated at the Regional Children's Infectious Diseases Hospital in Kharkov with acute OB severe from.

**Results.** We have identified 11 children to whom in the neonatal period or during the first months of life BPD (first group) were diagnosed. The other 35 children before admission to the hospital doesn't have any pathology of BPS (second group). The average age of the children was  $1,89 \pm 0,58$  and  $1,64 \pm 0,77$  months, respectively,  $p > 0,05$ . Among the negative factors of the child we determined a tendency to allergic reactions (including - inherited) in 5 (45%) and 14 (40%) children respectively to groups, overweight - 2 (18%) and 9 (25%), early using of the mixture and mixed feeding - 9 (81%) and 20 (57%), respiratory infections in the first months of life, especially in the first half years of life - 11 (100%) and 22 (62%), hypoxic-ischemic disorder of nerve system during the delivery - 11 (100%) and 16 (45%). At 4 (36,37 %) children of the first and 31 (88, 57 %) of the second group the disease started gradually with infrequent dry cough during  $4,54 \pm 1,24$  days. At 7 ( 63,63 %) children of the first and 4 (11,43 %) of the second group there are was acute onset of the disease, the clinical manifestations of obstructive syndrome with mucous secretions from nose, dry cough, loss of appetite, disorder of general condition were present.



At 4 children (36,37 %) of the first and 22 ( 62,86 %) of the second group at the onset of the disease temperature reaction were observed. The clinical picture of acute OB in all children was characterized by the presence of the bilateral broncho- obstructive syndrome: frequent dry cough, which later transformed in the wet with the releasing of viscous sputum, dyspnea. By percussion marked boxes pulmonary sound, by auscultation - hard breathing with long expiration, dry whistling rales on both sides were determined. Fever above 38,50 C was observed in 9 (81%) patients of the first and 31 (88%) of the second group. At 11 patients (23,91%), with acute onset of the disease with signs of obstructive component the course of the disease was very severe. These children were hospitalized in the intensive care department, where they were  $3,54 \pm 1,22$  days on the average, obstructive syndrome were persist for a long time ( $6,54 \pm 1,58$  vs  $4,84 \pm 1,23$  days in patients with gradual onset,  $p < 0,05$ ). According to our results, at children with BPD the course of OB were very severe and unfavorable; at 4 children we observed exacerbation of OB symptoms after a short period of clinical recovery. At children, of the second group the course of OB was favorable. The duration of obstruction in children with BPD was  $7,54 \pm 2,46$  days versus  $5,61 \pm 1,46$  days the children of the second group,  $p < 0,05$ .

**Conclusions.** Thus, a history of BPD in infants increase the possibility of development of acute OB, characterized by severity, prolongation of obstruction syndrome, unfavorable (wavy) course.

**Omelchenko A.V, Omelchenko O.V.**

## **THE UNCOMMON FORMS OF CARDIOMYOPATHY IN CHILDREN**

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**Department of Pediatrics №1 and Neonatology**

**Introduction.** Cardiomyopathy (CM) – is a heterogeneous group of heart diseases characterized by myocardium structural reorganization with a progressive course and unfavorable prognosis. Congenital errors of metabolism (15%) and various genetic syndromes (8%) lead to metabolic CM. Intravital diagnostic of mitochondrial CM is not quite reliable.

**The aim:** To improve the diagnostic of rare forms of the CM of children.

**Material and methods:** We examined two children from the same family with dysbolism of long chain fatty acids followed by CM at the age of 4 and 8 months; one 8 years-old child with MELAS syndrome.

**Results:** 2 children have such a diagnose: congenital metabolic imbalance – failure of long chain fatty acids  $\beta$ -oxidation (long chain fatty acyl-CoA dehydrogenase enzyme insufficiency), hypertrophic cardiomyopathy, circulatory failure, Reye -like syndrome, that was suspected because of a progressive lethargy, drowsiness , muscular hypotonia, cardiac disorders (symmetric hypertrophic cardiomyopathy), liver enlargement (Reye's syndrome), early clinical manifestation, regression of psychomotor skills, hyperlactatemia, increase transaminase levels, decrease of the free carnitine, acylcarnitines enlargement, high excretion of fumaric acid, adipic acid, oxoglutaric acid. In One child a MELAS syndrome was diagnosed (mitochondrial myopathy - encephalopathy - lactic acidosis, stroke-episodes) because of a combination of physical and psychomotor development delay; complaints (vomiting, diencephalic crises, weakness, lethargy); progressive multiple organ failure (myopathic syndrome, hypertrophic CM, nervous system damage, endocrine



disorders, gastrointestinal disorders); biochemical markers (increase of lactic and pyruvic acid); molecular genetic testing (mutation 14470T / C, 14766 C / T, 15326 A / G).

**Conclusions:** Metabolic disorders are very important in CM development. Metabolic CM is manifested by a combination of cardiac symptoms (hypertrophic CM in infancy) with extracardiac symptoms of mitochondrial pathology (infantile somatotype, myopathic syndrome, high levels of lactate and pyruvate, increased excretion of organic acids). A child with cardiomyopathy with suspicion on mitochondrial pathology should be consulted by the genetic. Early diagnostic of metabolic CM allows for recourse of changes in the heart and improves the disease prognosis.

**Onopriyenko E.A., Dulembova V.E., Muratov G.R., Ishchenko T.B.,  
Kryzhanovskaya E.N.**

**PROPHYLAXIS OF IRON DEFICIENCY ANEMIA AMID OF MICROBIAL  
INFLAMMATORY DISEASE IN INFANTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pediatrics №1 and Neonatology**

**Introduction.** Iron deficiency anemia (IDA) represents about 80% of anemias in children. Prophylaxis of iron deficiency anemia amid of microbial inflammatory disease in infants.

**Aim:** 1. Research the level of iron complex of blood serum in patients with microbial inflammatory diseases. 2. Assessment the effectiveness the use of iron preparations composed of combination therapy of acute pneumonia and acute pyelonephritis in infants.

**Materials and methods:** examined 43 children aged from 6 months to 3 years. In the main group 22 patients and 21 patients in the control group. Children in both groups diagnosed with acute community-acquired pneumonia and acute pyelonephritis. To all patients to diagnose latent sideropenia (LS) were held: the clinical analysis of blood, determination level of serum iron (SI) blood, levels of serum total iron binding capacity (TIBC) and coefficient transferrin saturation (K-sat). On admission, in the children of both groups registered LS: (SI-12.2 ± 0.6,  $p \leq 0.05$ , TIBC 76.4 ± 2.4,  $p \leq 0.05$ , K-sat 11.2 ± 0.3,  $p \leq 0.05$ , in comparison to standard values, in main group patients and in the control group patients: SI-11.8 ± 0.6,  $p \leq 0.05$ , TIBC 78.4 ± 2.4,  $p \leq 0.05$ , K-sat 10.8 ± 0.6,  $p \leq 0.05$ , in comparison to standard values. The main group of patients composed of combination therapy of acute pneumonia and acute pyelonephritis received iron supplements at a dose of 2.5 mg/kg/day.

**Results:** amid of the therapy in the main group patients in the peripheral blood parameters of a hemoglobin and red blood cells remained within the standard values in this age group, marked by reticulocytosis (18 ± 0.8%,  $p \leq 0.05$ ). In assessing the iron complex in the main group patients registered positive changes, as normalization of the level SI (18.6 ± 0.6,  $p \leq 0.05$  in comparison with baseline level in patients in this group), tendency to normalization of TIBC levels (67.4 ± 2.4 μmol/L) and K-sat (28.3 ± 0.9%). Patients in the control group not receiving the iron supplementation, registered the development a mild degree IDA Hb 108 g / l ± 0.3

**Conclusions:** In children with microbial inflammatory diseases is shown research of blood iron complex, which included the SI, TIBC, K-sat, in order to avoid LS. In order to prevent the development of IDA in children with LS amid of acute pneumonia and acute



pyelonephritis appropriate to include a in the complex therapy drugs ferrous iron preventive dose (2.5 mg/kg/day.).

**Potikhenska K.**

## **FUNGAL INFECTIONS IN CHILDREN WITH ACUTE LEUKEMIA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Paediatrics No. 2**

**Introduction.** Invasive mycosis occupies an important place in the structure of infectious complications in children with immunosuppression. Invasive pulmonary aspergillosis (IPA) is one of the most frequent ( 4.5 to 10%)fungal infection in children with systemic blood diseases. The group of risk includes patients with refractory forms of acute leukemia and bone marrow transplant recipients. Extremely high attributive mortality - from 40 to 94% - is typical for IPA.

**Results.** Dry cough and fever are early symptoms of acute IPA. Hemoptysis is not typical. The clinical manifestations may be familiar to acute pulmonary embolism. Early detection of mycotic process is the aim of modern diagnostic techniques it can significantly improve patients' survival The obtaining of bronchoalveolar lavage (BAL ) with cytological and bacteriological researches and / or antigen detection is highly specific method of investigation in immunosuppressed patients. Histological examination of biopsy specimens of the affected organ Aspergillus fungi is need for a definite diagnosis. In early stage when clinical manifestations are minimal CT is of use, especially spiral CT with high addressability. Good results have been obtained by definition of the Aspergillus galactomannan using immunoblotting and enzyme immunoassay (EIA ) in urine , blood, cerebrospinal fluid and bronchoalveolar lavages of patients which can detect about 1 ng / ml of galactomannan . Test is considered to be positive obtained twice on different days, and optic density is more than 1.0 ( by reaction ELISA) . “Halo” symptom is specific for the diagnosis. There are 3 forms of invasive aspergillosis according to reliability of diagnosis: 1. Proven IPA (histological and cultural confirmation are available) ; 2.Probable IPA (the patient is at risk group + microbiological confirmation + the corresponding clinical data ) ; 3 . Possible IPA (risk factors + the presence of one microbiological or clinical evidence ) .

**Conclusion.** Recently antifungal agent (pneumocandin) with new mechanism of action was proposed for the treatment of invasive fungal infections. This drug inhibits the synthesis of b-(1,3)-D glucan , that leads to synthesis disorders of fungal cellular wall. Such drug is caspofungin ( Cancidas manufactured in the dosage form for intravenous injections. The recommended dose on the first day is 70 mg once a day, and then 50 mg once a day.

**Pugacheva E.**

## **SCREENING PULSE OXIMETRY FOR EARLY DIAGNOSIS CRITICAL CONGENITAL HEART DEFECTS IN NEONATES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pediatrics No. 1 and Neonatology**

**Introduction.** Actuality of the problem congenital heart defects (CHD) caused its great prevalence and tendency to increase the proportion of more severe, combined CHD with frequent unfavorable prognosis already in the first months of life. Early detection of critical CHD could improve outcomes.



**Aim:** to improve early detection of critical CHD in early neonatal period.

**Materials and methods.** We performed physical examination and screening measurement of blood oxygen saturation (SpO<sub>2</sub>) by pulse oximetry to 387 full-term neonates at right hand and either foot at the age 24 - 48 hours of life. Exclusion criteria: prematurity, respiratory distress syndrome, pneumonia and other respiratory pathology.

**Results.** Among 387 newborns 55,5% were male, 45,5% - female. Average gestational age - 39,4±0,3 weeks. Low levels of SpO<sub>2</sub> detected at 12 (3,1%±0,9) newborns. Average saturation in group critical CHD 90,1%. 8 newborns with ventricular septal defects (VSD) had normal level of saturation – 96,5%. Heart murmurs were noted in 79 children (20,4%±2,04), cyanosis – y 25 (6,5%±1,25). Central cyanosis observed in only 2 infant with TGA (0,6%±0,2), perioral - at 9 (2,4%±0,8) newborns with critical CHD, in 5 children (1,3% ± 0,6) with muscular VSD and 10 children (2,8%±0,83) with a functioning fetal blood flow. Sensitivity of murmur in the diagnosis congenital heart defects in the first 24 - 48 hours of life is 90,1% (95% [CI 67,9 – 98,2]), specificity of 77,2% (95% [CI 75, 5 – 77,8]). Meanwhile the sensitivity of pulse oximetry on the identification of critical CHD was 100% (95% [CI 78,4-100,0]), specificity - 100% (95% [CI 99,3 – 100,0]). Pairwise comparisons showed significant differences ( $p \leq 0,05$ ) between the SpO<sub>2</sub> of newborns with critical congenital heart defects and healthy children, as well as between neonates with small VSD and children with critical CHD ( $p \leq 0,05$ ). Measurement of saturation at the age 24-48 hours is sensitive and specific method which could identify newborns with critical congenital heart defects. Physical examination is also sensitivity method of diagnosis critical CHD, but has low specificity. By the created algorithm of early diagnosis neonates with SpO<sub>2</sub> less than 95% must be examined by echocardiography and consult by cardiologist.

**Teslenko T., Zozulya O., Evdokimova T.**

## **VERIFICATION OF THE CARDIOMYOPATHY OF CHILDREN WITH DIABETIC FETOPATHY**

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Department of Paediatrics No. 1 and Neonatology**

**Introduction.** Diabetic fetopathy forms in 90-100% of infants, who were born from a pregnancy with diabetes. There is no screening of diabetic fetopathy. There are no effective and affordable methods for predicting diabetic fetopathy either. Diabetic fetopathy can cause hypertrophy of myocardium of different degree in future.

**Aim:** To establish the presence and reliable diagnostic criteria for diabetic cardiomyopathy in infants who were born from mothers with diabetes mellitus (DM).

**Methods and materials.** We conducted an analysis of obstetric history, physical examination, clinical and instrumental examination (ECG, Doppler echocardiography) of 22 newborns delivered by mothers with diabetes mellitus in the Kharkiv Regional Perinatal Center in 2013. The control group consisted of 15 healthy newborns.

**Results.** DM of the 1 type was diagnosed in 19 (86,4±7,48%) pregnant women, gestational DM in 3 (13,6±7,48%). Complicated pregnancy flow was observed in 100% of examined women: polyhydramnios – in 7 (31,8±10,16%); delivering by Caesarean section – in 21 (95,5%±4,52) women. Normal vaginal delivery by 1 mother (4,5±4,52%). Premature delivery occurred in 90,9% ±6,27 (Gestational age (GA) <37 weeks - 20 infants; GA >37 weeks – 2 (9,1 ±6,27%). At birth, diabetic fetopathy (ICD10 P70, P70.1) was diagnosed in



21 (95,5±4,52%) children. Macrosomia in 5 infants (22,7%±9,14),welts – in 6 (27,3%±9,72),petechiae – in 4 (18,2%±8,41), hypertrichosis – in 2(9,1%±6,27),reflex disorders - 13 (51,9%±10,72), systolic murmurs - in 12 (54,5% ± 10,86), an infant respiratory distress syndrome - in 4 (18,2% ± 8,41), hypoglycemia during first 2 days - in 7 (31,8% ± 10,16 ). The ECG analysis showed nonspecific changes (abnormality of myocardial repolarization) - in 7 (31,8 ± 10,16%) children. According to Doppler echocardiography a moderate dilatation of the right heart chambers, the reverse blood current through the tricuspid valve was present in 14 (73,7% ± 10,37) children, through the pulmonary artery - in 2 (10,5% ± 7,22), anomalous chord of the left ventricle - in 5 (26,3% ± 10,37), atrial septal aneurysm - in 7 (36,8% ± 11,36); in 3 (15,8% ± 8,59) children - newborn pulmonary hypertension. There was a significant differences between Doppler echocardiography of infants with DF and the examined control group in parameters of end-diastolic volume of the left ventricle (LV) ( $p < 0.01$ ), LV posterior wall thickness ( $p < 0.05$ ), interventricular septal thickness (IVS) ( $p < 0.01$ ), the pressure gradient in the output section of the LV more than 10 mm Hg. Asynergy of the heartbeat was diagnosed in 18.2%, left ventricular diastolic dysfunction, the slow relaxation type, in 75.0% ( $p < 0.05$ ).

**Conclusions.** As a result we significantly proved the presence of the cardiovascular disorders in 87% of newborns with diabetic fetopathy. Verification of the diagnosis of diabetic cardiomyopathy is based on Doppler echocardiography data: thickening of the IVS ( $T > 4.7$  mm), an increasing of the end-diastolic volume and left-ventricular size (more than 2 by Sigma Z-score); left ventricular diastolic dysfunction,slow relaxation type.

**Yanovskaya K.O., Dhrubojyoti Basu**

## **PECULARITIES OF JOINT DAMAGE IN CHILDREN WITH REACTIVE ARTHRITIS**

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**Department of Propaedeutics of Pediatrics №2**

**Introduction.** The most pressing problems of Rheumatology include reactive arthritis (ReA) in childhood, driven both by increasing morbidity, and significant proliferation recurrent variants of the disease, the complexity of differential diagnosis with the other rheumatic diseases that occur with joint syndrome. Frequency of occurrence of ReA induced by Chlamydia trachomatis is 4.6, and induced by Enterobacteria – 5.0 per 100000 population (Nasonov EL, 2008).

**Aim.** To identify the features of the current course of ReA in children of preschool age.

**Materials and methods.** Clinical (interrogation, observation, examination), paraclinical (X-ray, ultrasound) and statistical methods for data processing. We observed 60 preschool children from 1 to 6 years-old with reactive arthritis. There were 44 children (73%) with acute course of reactive arthritis. , recurrent course occurred in 16 children (27%). Monoarthritis occurred in 41children (68 ± 6)% , oligoarthritis in 18 children patients (30 ± 5,9)% , polyarthritis was only in 1 child (2 ± 1,8)% ,

**Results.** The hip joints were affected in 25 children (41,7 ± 6,4)% of preschool ages. The hips were affected more often than the other joints. Arthritis of the knee occurred in 23 children (38,3 ± 6,3)%. Ankles were injured in 11 patients (18,3 ± 5)%, more common in girls (23 ± 8,3)%. There were isolated cases of joint damage of the upper extremities.



**Conclusion.** Acute arthritis were prevailed in a group of preschool children, monoarthritis occurred significantly more frequently ( $p < 0,001$ ), the hip joints were affected more often, which speaks about the features of the current course of reactive arthritis in preschool children.

**Yemets T.**

**CHILDREN AND ADOLESCENTS EXTERNAL RESPIRATION FUNCION  
CAUSED BY TOBACCO SMOKING**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of propaedeutics of Pediatrics**

**Introduction.** At the modern stage of social development children and adolescents' smoking is becoming global issue of the whole humanity. According to the research made by European Anti-Smoking Organization Ukraine is taking second place by the number of cigarettes consumed per person. 90% of deaths in the world are caused by lung cancer, 75% are the result of chronic bronchitis, 25% are due to ischemic heart disease caused by smoking. About 115 thousand people die annually in our country of diseases the cause of which is consumption of tobacco products. In Ukraine there are 11.5 million smokers (or 31% of population over 18 years). Smoking harms inhaled air filtration mechanism in the body. The chemical substances of tobacco smoke, particularly hydrocyanic acid, acryl aldehyde, ammonia, nitrogen dioxide and formaldehyde, can lead to mucus and toxicants accumulation in lungs, thus increasing the probability of lung diseases development.

**Aim:** determine the impact of tobacco smoking on the children and adolescents external respiration function indices in Kharkiv.

**Materials and methods:** 246 adolescents between the ages of 12-17 studying in secondary school in Kharkiv have been examined. The examination program included questioning of adolescents and their parents using special checklist with points given for each question in the range of 5 to 0. Every respondent could answer several questions. The external respiration function indices was identified with the help of computer diagnostic complex "Sphera 4" with determination of the main parameters. Statistical analysis was carried out with the use of parametric and nonparametric tests (Student-Fisher's test, van der Waerden's test, etc) and correlational analysis.

**Results:** The researches were carried out in compliance with international bioethical standards and with the consent of adolescents' parents to take part in the examination. Results analysis showed that 98 of all examined children smoke, which constitutes 39.8%. When analyzing the spirometry results we concluded that adolescents with 2 years of smoking experience have significantly reduced vital capacity of lungs in comparison to their peers. Smoking has considerable negative effect on lung function and leads not only to vital lungs capacity reduction but also to decrease of forced expiratory volume per second (FEV1) and reduces the functional vital capacity on average by 5-10%. The thrice-repeated tests showed that adolescents without bad habits had increasing indices whereas smokers' tests showed the increase of all the above mentioned changes and by the third test the difference of FVC and FEV was more than 150 ml. Besides, 65.5% of smoking adolescents with 2 years smoking experience and more started coughing when performing forced expiratory maneuvers. Qualitative analysis of spirogram showed that on average 45% of smoking children have initial development of external respiration impairment of restrictive type and



40% of them have moderate impairment of mixed type. It was determined that moderate obstructive impairments are typical for boys (88.2%) and moderate restrictive impairments are common with girls (68.2%).

**Conclusions:** Thus, only 92% of lungs of those children who started smoking in adolescence work effectively in comparison to nonsmoking children. And performing up-to-date adequate community health among adolescents will allow to prevent the spread of harmful habit and will keep the health of rising generation.



## MEDICAL GENETICS

**Adamyán L. M., Grechanina Y. B., Molodan L. V.**

### **THE CASE OF COMBINATION OF HYPOCHONDROPLASIA, METHYLENETETRAHYDROFOLATEREDUCTASE (MTHFR) DEFICIENCY AND MITOCHONDRIAL DYSFUNCTION**

**Ukrainian Institute of clinical genetics of KNMU; Kharkiv Specialized Medical  
Genetic Centre, Kharkiv**

**Introduction:** 346 patients with skeletal abnormalities were examined at KSMGC since 2009 till 2013. Among them, 2 patients with concomitant signs of hypochondroplasia and metabolic disorders.

**Results:** The patient D., 28 years old, complains of a low growth, shortening of the upper and lower extremities, an aching pain in the left hip. In 2012, as a result of injuries, pseudoarthrosis of the of the left femoral bone formed. In phenotype: a short stature (131 cm), nystagmus, a prominent forehead, hands and feet are wide; disproportionately short limbs, radiologically confirmed. In pedigree: a low growth in the mother and maternal grandfather. - Biochemical analysis of serum: lactate dehydrogenase -  $\uparrow$ 332.65 U/l, alkaline phosphatase -  $\uparrow$ 380.4 U/l, gamma-glutamyltransferase -  $\uparrow$ 47.84 U/l. - MTHFR 677 TT polymorphisms, the MTRR 66 AG gene. - Karyotype: 46, XY.

**Diagnosis:** Hypochondroplasia. Pseudoarthrosis of the middle third of the diaphysis of the left femoral bone. Deficiency of the MTHFR enzyme. MTRR 66. Mitochondrial dysfunction.

**Conclusions:** The present case demonstrates the phenomenon of the combination of hypochondroplasia with signs of MTHFR deficiency and mitochondrial dysfunction, the last acquires the clinical significance for the development of individual complex rehabilitation.

**Beletskaya S.V., Grechanina E.Y., Grechanina Y.B., Molodan L.V., Zdybskaya  
E.P., Bugaeva E.V., Yeliseyev V.Y.**

### **CASE OF CHROMOSOMAL MICRO ANOMALIES, CHROMOSOMAL AND GENE POLYMORPHISM COMBINATIONS.**

**Ukrainian Institute of clinical genetics of KNMU; Kharkiv Specialized Medical  
Genetic Centre, Kharkiv**

**Introduction:** In medical and genetic counseling there are more and more combined disorders. The reason for this may be abnormal expression of a single gene or a common global deregulation in which polymorphic variants of genes and external factors caused by epigenetic changes form a predisposition to the disease.

**Results.** Boy, 2.5 years, consulted in KHSMGC with the coarse delay of the psycho-speech, motor and physical development, episodes of fading. Ill since birth. Neonatal period – epis syndrome and episodes of apnea. Pregnancy was complicated by maternal preeclampsia, threatened miscarriage. Phenotype: multiple stigma disembrio genesis manifestations of microangiopathy, spina bifida occulta. In the pedigree: cardiovascular disease. Examination: - Molecular cytogenetic testing: 46,XY, 1phqh, 14ps+; microdeletion 15q11.2; - Study of polymorphic variants of the folate cycle genes: MTHFR gene polymorphism 1298G/G, and 66 genes MTRR MTR 2756A/G; - Biochemical profile:



Increased levels of lactate dehydrogenase: 568U/L (normal – under 345); - Vitamin B12 in Blood: 1212 pg/ml (normal 187-883).

**Diagnosis:** Epigenetic disease. Chromosomal polymorphism (46,XY, 1phqh, 14ps+). Chromosomal microanomalies (microdeletion of the long arm of chromosome 15). MTRR gene polymorphism 66 and MTR 2756A/G, MTHFR gene 1298G/G. CDF CNS (spina bifida occulta). Mitochondrial dysfunction.

**Conclusions:** The case demonstrates the combination of pathological changes, which is due to chromosomal microanomalies, genetic and chromosomal polymorphism. Morphological changes in the genetic material suggest the involvement of epigenetic status, which allowed for effective symptomatic treatment.

**Grechanina E.Y., Yanovska A.A., Tkacheva T.M.**

### **AN EARLY DIAGNOSIS OF XYY SYNDROME ASSOCIATED WITH METABOLIC DISORDERS**

**Kharkiv, Ukraine, KHSMGC**

**Introduction.** XYY syndrome is often phenotypically normal, but patterns of variable mutations may be estimated as for an early diagnosis of XYY syndrome. Metabolic disorders help to diagnose the syndrome in early months of life

**Results.** Case report: XYY syndrome has been revealed in two children (9 months and 5 years old). Classical signs by Smith's: patient Sh., 5 years old, DisomyY (47, XYY). Sulphide oxidase deficiency. Patient G., 9 months old, DisomyY (47, XYY), Hyperammonemia. Complaints: Psycho-motor development delay, stereotypy, epilepsy, encopresis; Motor development delay, agenesis of the left kidney, muscle hypotonia. Anamnesis. Ill from birth: refusal from food, intracranial hypertension, internal hydrocephaly, loss of skills since 3 months. Tremor during sleeping and crying. Growth. Acceleration. Performance. Pyramidal deficiency, muscular hypotonia, epilepsy. Pyramidal deficiency, muscular hypotonia, tubulopathy. Dull mentality. IQ ↓. Relative weakness, fine motor coordination and intentional tremor. Speech delay common. Learning disabilities. Dentition. Large teeth. Facies. Prominent glabella, asymmetry, long ears. Prominent glabella, epicanthus, strabismus. A long nose. Skeletal. Increased length versus breadth. Evident in cranial vault, hands and feet. Pectusexcavatum. Karyotype 47, XYY. Biochemistry. Glycine ↑, methionine ↑, taurine ↓, Sulfur metabolism: Sulfid test (Mo, Sulfur metabolism) ↑↑, 3-hydroxypropionic (B12) ↑, 5-Oxoproline (Cys) ↑, Aconitic (Cys) ↑. Hyperammonemia, triglycerides ↑, taurine ↑, aspartate ↑.

**Conclusion.** Metabolic disorders contribute to an early diagnosis, their correction has given the positive result.

**Grechanina Y.B., Yanovska A.A., Yeliseyev V.Y.**

### **COMBINATION OF WILSON DISEASE AND CLINICALLY SIGNIFICANT POLYMORPHISMS MTRR(AA) AND MTHFR(CT) AGAINST THE BACKGROUND OF HERPESVIRUS INFECTION.**

**Kharkiv, Ukraine, KHSMGC**

**Introduction:** Wilson's disease develops due to a defect of the copper transporting enzyme - hepatocuprein (ATP7B gene); Accumulated copper causes liver, nervous system and other organ damage. Metabolic disturbance of sulfur amino acids is characterized by



significant clinical polymorphism, mainly affecting the nervous and cardiovascular system of the skeleton.

**Results:** patient Karina, 10 years old. Complaints: seizures with loss of consciousness, headaches, fatigue, abdominal pain, feet sprains; excessive weight gain. History of the disease: From 5 years diagnosed with connective tissue dysplasia. Chronic gastroduodenitis, tonsillitis, cerebral angiodystonia. Dismetabolic nephropathy. Herpes virus, Epstein-Barr virus. Polymorphisms in the folate cycle genes MTRR (AA) and MTHFR (CT) were identified. HPLC blood amino acid: ↑methionine 0.045mmol/l; blood homocysteine 15mmol/l, ↑iron 24.83mkmol/l. From the age of 9, convulsive seizures appeared with loss of consciousness, excessive weight gain. The increase of copper level in the blood(57.3mM/L) in the urine(13.4mmol/day), decreased ceruloplasmin(170 mg/l); hyperlipidemia, steatosis.

Diagnosis: a complex metabolic disorder - Wilson disease, dyslipidemia, clinically significant Polymorphisms MTRR(AA) and MTHFR(CT). While taking “Kuprenil” the girl became calm, collected. Termination of folate therapy leads to a resumption of seizures.

**Conclusion:** In recent years, the diagnosis of phenotypic syntropy is increased. If an atypical course of the disease is found, or a result of inadequate treatment of patients with previously established diagnosis, further examination is needed to find comorbidity.

**Grinchenko Yu.N., Grechanina Yu.B., Molodan L.V., Zdybskaya E.P., Bugaeva E.V., Nagieva K.F.**

**THE COMBINATION OF HALLERVORDEN-SPATZ SYNDROME WITH DEFICIENCY OF METHIONINE SYNTHASE REDUCTASE, HYPERHOMOCYSTEINEMIA AND MITOCHONDRIAL DYSFUNCTION.**

**Kharkiv Specialized Medical Genetic Center, Ukraine**

**Introduction.** In the practice of medical genetic counseling in KSMGC hereditary diseases of the nervous system take essential proportion, among 13,867 primary patients, disorders of the nervous system had met in 1.7%.

**Results.** Boy N., 15 y.o., was consulted by KSMGC in connection with violation of the act of walking, movement coordination, fatigue, hyperactivity disorder, decreased visual acuity, delay of speech development, cognitive impairment, aggressive behavior. Since 12 years noted premature puberty, has gradually started to limp, arching feet inward, walking on tiptoes. Neurological status: dystonic hyperkinesis of legs by equine-valgus contracture type. In phenotype: microangiopathy, stigmas of disembrionogenesis, premature puberty. Genealogy is burdened by multifactorial pathology.

The study included: - EEG: epileptiform discharges. - MRI of the brain: Signs of a neurodegenerative disease. - Biochemical blood test: ↑AST 35.78 U/L(0-28), ↑phosphorus 1.53 mmol/l(0,87-1,45), ↑ creatinekinase 470.56 U/l(0-270). - Iron-blood: 22.9 mmol/l (11,6-31,1). - Cytogenetical research - 46, XY, 1% of the chromosome instability. - The polymorphism of MTRR 66GG, AGT I 174TM, AGT II 235MT. - Ophthalmologist - atrophy of optic nerves. - ↑ Homocysteine - 11.9 mmol/l(<5).

Diagnosis: Hallervorden-Spatz disease. Mitochondrial dysfunction. Gene polymorphisms: MTRR 66GG, AGT I 174TM, AGT II 235MT. Hyperhomocysteinemia.

**Conclusion.** Detected a combination of Hallervorden-Spatz syndrome with polymorphisms MTRR 66GG, AGTI 174TM, AGTII 235MT, hyperhomocysteinemia and



mitochondrial dysfunction, show the clinical manifestation, is not peculiar to Hallervorden-Spatz syndrome and apparently caused by decrease in enzyme activity MTRR 66GG.

**Ivanova I.B., Beletskaya S.V., Rubinskaya N.V., Kolosyuk A.S.**  
**FAMILY CASE COMBINING STRUCTURAL CHROMOSOMAL ABERRATIONS, MITOCHONDRIAL DYSFUNCTION AND HYPERAMMONEMIA.**

**KharkivSpecialized Medical Genetics Center, Kharkov, Ukraine.**

**Introduction:** In the practice of genetic counseling, we emphasize phenomenon syntropy - namely, the presence of two or more interconnected and naturally developing diseases.

**Aim:** Description of a family case combining structural chromosomal aberrations t(17;20), mitochondrial dysfunction and hyperammonemia of the child and father.

**Materials and methods:** Somatogenetic, clinical, biochemical and cytogenetic family examination was conducted. Out of 2113 cytogenetic tests of 2013, this case t(17;20) was the only one.

**Results:** Family appealed due to the child's psychomotor retardation. Proband - 3year old child, from II pregnancy, 1st physiological birth at 40 weeks of gestation. Birth-weight 3750g., birth-height 52cm. Phenotypically: pale skin, surface location of subcutaneous veins, brachycephaly, wide face, blue sclera, short nose, joint hypermobility. Increased levels of lactate dehydrogenase - 534U/L, increased levels of ammonia - 76.89mmol/l. Proband karyotype: 46,XX, der(17) t(17;20) (p13;q11) (Fig.1). Father karyotype: 46,XY, der(17) t(17;20) (p13;q11). Mother karyotype: 46,XX. The data obtained may indicate a combination of structural chromosomal aberrations t(17;20), mitochondrial dysfunction and hyperammonemia of the child and father. Based on our observations and laboratory data of these patients, we can assume the syntropy phenomenon. To confirm, a molecular diagnostics for the presence of mutations in the 17q21.31 region is needed.

**Conclusion.** Accompanying chromosomal pathology metabolic disorders allow you to pick individual effective rehabilitation measures aimed at improving the quality of treatment and life.

**Kanuka M.V., Yanovska A.A., Grechanina Y.B., Zdybskaya E.P.**  
**FUMARIC ACIDURIA CASE.**  
**Ukraine, Kharkiv, KHSMGC.**

**Background:** fumaric aciduria refers to mitochondrial disorders, due to lack of fumarase. Manifested by progressive encephalopathy, hypotension, dyspnea, seizures and lactic acidosis.

**Results:** - 10 days old, was examined in the ICU.

History of the disease: 2 hours after birth dyspnea and diffuse hypotonia appeared. Hypotension increased, depression of reflexes, respiratory failure, cardiomyopathy, arrhythmia, hepatopathy, anemia (hemoglobin 88 g/L, platelets  $86 \cdot 10^9/L$ ), hypoglycemia. Examination: malnutrition, pallor, marbled skin, triangular face, flattened chest, valgus feet. Blood tests: lactate  $\uparrow 2.63 \text{ mmol/l}$ ,  $\uparrow$  ammonia 122  $\mu\text{mol/l}$ ,  $\uparrow$  glutamate,  $\uparrow$  glycine,  $\downarrow$  tyrosine,  $\downarrow$  isoleucine,  $\downarrow$  tryptophan. Gas chromatography test: urine  $\uparrow\uparrow$  fumarate 641.29 mmol/molKREA,  $\uparrow\uparrow$  lactate 2606.75 mmol/molKREA,  $\uparrow\uparrow$  oxoglutarate 3491.7 mmol/molKREA;  $\uparrow$  succinate. Periventricular leukomalacia.



The diagnosis: fumaric aciduria (fumarase deficit), secondary hyperammonemia.

With a diet and metabolic therapy the child's condition has stabilized; hypotonia persisted, hypodynamy, cardiomyopathy.

**Conclusion:** Acute deterioration of the child after birth with the development of hypotension, cerebral oppression, it is necessary to carry out tests to exclude congenital defect of metabolism, including mitochondrial dysfunction.

**Kvitchataya N.N., Grechanina Y.B., Yanovska A.A..**

### **COMBINED CHROMOSOMAL ABNORMALITIES, MITOCHONDRIAL DYSFUNCTION AND METABOLIC COBALAMIN DISORDER.**

**Kharkiv Specialized Medical Genetics Center, Ukraine.**

**Introduction:** mitochondrial dysfunction manifests with multiorganic disorders mainly affecting the central nervous system, heart, liver and muscles.

**Results:** a child counseled at 4 months with complaints of development delay: weakly holds her head, lethargy, mild paratrofia. History: during the first days of life lethargy, dyspnea, diffuse hypotonia and hyporeflexia appeared. No sucking reflexes. Ultrasound: increased echodensity of the brain, subependymal cyst on the left side 2mm; operating oval window, open ductus arteriosus. Elevated echodensity of the liver, metabolic nephropathy.

Intensive therapy was provided. Hypotension persisted, developmental delay; hydrocephalic syndrome. Tendon reflexes were average on hands, on knees were torpid. Electromyography was done at the age of 3 months: upper limb muscle function is reduced due to nerve damage along trunks of the brachial plexus, decreased muscle contraction of the hip on the background of neuritic femoral nerve disorders; central type hypertonicity, the conductivity in the lower extremities slightly reduced distally. Neurosonography - expanded external cerebrospinal fluid spaces. Karyotype: 47,XX, +mar. In the blood: lactate  $\uparrow$  2.69 mmol/l,  $\uparrow$  LDH 545.68 U/L,  $\downarrow$  creatinine 22.14  $\mu$ mol/L. Gas chromatography of the urine: modified Krebs cycle metabolites; ketosis, Low levels of Vit B2, B5, B12. Metabolic therapy was given (ubiquinone, carnitine, vitamins). General condition improved.

Diagnosis: chromosomal abnormality (marker chromosome), mitochondrial dysfunction, metabolic cobalamin disorder.

**Conclusion:** observation demonstrates the combination of chromosome pathology with metabolic disorders, it is necessary to investigate chromosomal aberrations of metabolic status for the selection of adequate therapy.

**Molodan L.V., Nagieva K. F., Grechanina E.Y., Grechanina Yu.B.**

### **COMBINATION OF HEREDITARY MOTONEURONOPATHY WITH HYPERHOMOCYSTEINEMIA AND FOLATE DEFICIENCY**

**Kharkiv Specialized Medical Genetic Center, Ukraine**

**Introduction.** Hereditary motoneuronopathies - genetically heterogeneous group of clinically polymorphic diseases with progredient character of the course, leading to disability. Determination of certain metabolic disorders in this group of patients allows to adjust conducting tactic of patients, thereby slow down the progression of the process.

**Results.** Patient G., 17 years old boy, complained of fatigue during physical activity, cramps in the calf muscles, emaciation of the lower limbs, feet deformity, difficulty in



walking, unsteadiness. In phenotype: pink color of the palms, thin hair, long face, short nose, long neck, scoliosis, Friedreich's feet, amyotrophy. -Karyotype - 46, XY. -Ultrasonography of internal organs: Inhomogeneous structure of pancreas. Kidney: moderate bilateral hidrokalkosis. Metabolic changes (inclusions up to 1.7mm). -Homocysteine  $\uparrow$  - 10,6mmol/L, folic acid  $\downarrow$  - 5,1ng/ml. -GC-MS of urine. The changes of metabolites of fatty acid oxidation, fungi and yeasts, bacteria; ketosis; insufficiency of B2, B5, Mg. -Biochemical blood test - the norm. Neurological status: amyotrophy, lower peripheral paraparesis, polyneuropathy, foot deformity by Friedreich, typical form of sensor neuropathy.

**Conclusion.** Detected combination of hereditary motor sensor neuropathy with hyperhomocysteinemia and folate deficiency allowed to develop individual rehabilitation tactics and improve the patient's condition, in particular, the microcirculation of limbs.

**Yanovska A.A., Grechanina Y.B., Grechanina E.Y., Zdybskaya E.P., Yeliseyev V.Y.  
CASE OF THE COMBINATION OF CYSTIC FIBROSIS WITH METABOLIC  
DISORDERS OF FATTY ACIDS AND SULFUR CONTAINING AMINO ACIDS.**

**Kharkiv Specialized Medical Genetics Center, Ukraine.**

**Background:** cystic fibrosis - a clinically and genetically heterogeneous polymorphic pathology, which is accompanied by changes in the metabolism of various parties.

**Results:** A boy, from a closely related marriage, was sent to us at the age of 4 months with a diagnosis of malabsorption; hypoproteinemic edema, pneumonia, endogenous intoxication syndrome. History: Sick since 2 months of age, the child was having trouble gaining weight, there were violations of the stool, lethargy. At 3 months the condition worsened: malnutrition, hypodynamy, expressed hypotonia, episodes of arrhythmia, dyspnea, anxiety, malabsorption, pallor, swelling of the skin. On examination:  $\uparrow\uparrow$  sweat chloride 156, 110mmol/l sweat. Steatorrhea, reduced trypsin in feces. Mild hepatosplenomegaly, metabolic nephropathy. Lagged behind in development, hypotonia, pneumonia, shortness of breath, coughing, tachyarrhythmia, bloating, stool disorders. At the age of 1 year: hepatomegaly, fibrosis. In blood:  $\downarrow$  methionine 0.015mmol/l,  $\downarrow$  valine 0.068mmol/l,  $\downarrow$  glutamine 0.280mmol/l,  $\uparrow$  homocysteine 7.8 mmol/l;  $\uparrow$  AST 110U/L,  $\uparrow$  ALT 226U/L,  $\uparrow$  LDH 959.84U/L;  $\downarrow$  cholesterol 1.32mmol/l,  $\downarrow$  iron 5.1mkmol/l,  $\downarrow$  Ca 1.38mmol/l,  $\downarrow$  albumin 30.93g/l. Gas chromatography of urine:  $\uparrow\uparrow$  methylmalonate 54.44mmol/molKREA,  $\uparrow\uparrow$  suberic acid 461.48U/molKREA,  $\uparrow\uparrow$  oxoglutaric acid 755.73U/molKREA,  $\uparrow\uparrow$  p-hydroxyphenylacetic acid 3466.41 U/molKREA,  $\uparrow\uparrow$  hydroxyphenyllactic 1475.6 U/molKREA,  $\uparrow\uparrow$  3-hydroxysebacic acid 157.25 U/molKREA,  $\uparrow$  ethylmalonic acid,  $\uparrow$  phenoxycetic acid 179.39 U/molKREA,  $\uparrow$  azelaic,  $\uparrow$  5-hydroxyindolacetic.

**Conclusions:** The observation demonstrates the syntropy phenomenon. Shows the need to find comorbidity in patients with multiple organ disorders, in families with incestuous marriages for the selection of adequate therapy and rehabilitation.

**Zdubskaya E.P.**

**AN EARLY MANIFESTATION OF LBSL SYNDROME, CASE DESCRIPTION**

**Kharkiv Specialized Medical Genetic Centre**

**Introduction.** Leukoencephalopathy with brain stem and spinal cord involvement and lactate elevation is an autosomal recessive disease. Mutation in gene DARS2 is associated with this syndrome. The gene is located on the long arm of chromosome 1 (1q 25.1), the disease is associated with deficiency of mitochondrial aspartyl - tRNA synthetase.



**Results:** 1 year and 5 month old boy T., with static kinetic and psycho-speech development delay, excess body weight (16kg). The child is from I pregnancy against the background of threatened miscarriage. Delivery at 36-37 weeks by cesarean section. Birth weight - 3300g. At the time of examination we paid our attention at the decreased muscle tone, muscle strength tendon and periosteal reflexes are not observed, nystagmus, ataxia. ENMG – the neuropathic type of changes, myopathic syndrome. MRI of the brain - using T1, T2 and FLAIR- modes - white matter lesions of the brain and cerebellum. The karyotype - 46,XY. Phosphorylation rate is decreased -111.8 mmol / min.mg of protein. Amino acid levels, blood lactate are unchanged, GC-MS - organic aciduria, disorders of fatty acid oxidation are not revealed. Partial analysis of the DARS gene by sequencing: in 5 gene locus - mutation c492+2T-C in the heterozygous state.

**Conclusion:** As a rule, the disease manifests in the age of 3-15 years. Cerebellar ataxia, spastic tetraparesis and cognitive impairment develop. Before the onset of the disease, psychomotor and speech development corresponds to age, movement disorders develop further, patients become disabled by the second to fourth decade of life. In our case, the disease manifested in the heterozygous carrier by one year of life and was accompanied by obesity.



## PHARMACOLOGY

**Ahmad Saad**

### **TREATMENT OF ALZHEIMER'S DISEASE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pharmacology and Drug Prescription**

**Introduction.** Alzheimer's disease (AD) is a slowly progressing disease of the brain characterized by impairment of memory and eventually by disturbances in reasoning, planning, language, and perception. AD is one of senile dementia type. It is characterized by difficulty with many areas of mental function, including emotional behavior or personality, language, memory, perception, thinking and judgment (cognitive skills). AD usually first appears as forgetfulness.

**Aime:** to study pathogenesis and treatment of AD.

**Materials and methods.** Analysis of scientific literature was the base for study

**Results.** Many scientists believe that AD results from an increase in the production or accumulation of a specific protein (beta-amyloid protein) in the brain that leads to nerve cell death. With AD progression brain cells die and connections among cells are lost, causing cognitive symptoms to worsen. Currently used drugs cannot stop the course of AD, they may help lessen or stabilize symptoms for a limited time. There are two main types of drugs, one of them are acting on cholinergic mechanisms, another – on — glutamate mechanisms. Enhancement of cholinergic mechanisms is realized by cholinesterase inhibitors. Three cholinesterase inhibitors are commonly prescribed: Donepezil (Aricept) is approved to treat all stages of AD, Rivastigmine (Exelon) is approved to treat mild to moderate AD, Galantamine (Razadyne) is approved to treat mild to moderate Alzheimer's. All 3 drugs are generally well tolerated, if side effects occur they commonly include nausea, vomiting, loss of appetite and increased frequency of bowel movements. These drugs can delay worsening of symptoms for 6 to 12 months, on average, for about half the people who take them. Tacrine (Cognex) was the first cholinesterase inhibitor approved, but today it is rarely prescribed because of more serious side effects than that of the other three drugs in this class. A second type of medication, memantine (Namenda) is approved for treatment of moderate to severe AD. It regulates the activity of glutamate and thus delays worsening of symptoms for some people temporarily. Many doctors consider its benefits similar to those of cholinesterase inhibitors. Memantine can cause side effects, including headache, constipation, confusion and dizziness. Some doctors have an experience of combined usage of both groups' drugs with good result. Vitamin E as an antioxidant that may protect brain cells was tried in the treatment of AD. It was proved that high doses delayed loss of ability to carry out daily activities. In other studies scientists have found evidence that high-dose vitamin E may slightly increase the risk of death of AD patients, especially for those with coronary artery disease.

**Conclusions.** Alzheimer's disease is a neurodegenerative disorder. The treatment of AD remains difficult medical problem.



**Aleksandrova A.V.**

**INFLUENCE OF DOXYCYCLINE ON PROINFLAMMATORY CYTOKINES TNF- $\alpha$  IN THE TREATMENT OF THERMAL BURN IN RATS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pharmacology and Drug Prescription**

**Aim:** examine the level of the proinflammatory cytokine TNF- $\alpha$  in the serum during the healing of thermal burns in rats after treatment with synthetic matrix metalloproteinase inhibitor doxycycline.

**Materials and methods:** Studies were conducted on 96 rats weighing 200-250 WAG population. Animals were divided into 4 groups: intact (group 1), with experimental burn without treatment (group 2), treatment with methyluracil (reference drug) 0.126 mg / kg (group 3), treatment with doxycycline 30.0 mg / kg (group 4). Animals were withdrawn from the experiment at 7, 14, 21 and 28 days. The TNF- $\alpha$  blood level was determined by the immunoenzyme method using the test system of Bender MedSystem (Germany) in accordance with the guide on LabLine-90 Automated EIA analyzer (Austria).

**Results:** studying the TNF- $\alpha$  peripheral blood level in rats revealed its increase throughout the entire experiment period as compared to the normal value. The maximum indicators were recorded in the first two weeks of observations. Then, the cytokine content gradually decreased as compared to the preceding periods, but remained considerably above normal. Under the influence of methyluracil, the TNF- $\alpha$  level reduced in all study periods as compared to the control group, but remained significantly higher than in the intact animal group at all times during the experiment. Doxycycline proved to be the most effective. A significant reduction of the TNF- $\alpha$  blood level throughout the entire period of the experiment was recorded as compared to the control group and the comparative drug. By Day 28 of the observations, the pro-inflammatory cytokine dropped down to the normal value.

**Conclusions:** Therefore, all the investigational drugs reduced the pro-inflammatory cytokine TNF- $\alpha$  level in blood as compared to the group that did not receive treatment, but to a different degree. The highest efficacy of doxycycline was established, as only its administration resulted in the TNF- $\alpha$  level reduction to the normal value on Day 28, and, as early as on Day 7, it was lower than in the reference drug group.

**Belovol A. N., Khoroshun D., Pligovka V. N., Shaposhnikova Yu. N., Shkolnik V. V., Nemtsova V. D.**

**EFFECT OF L-THYROXINE REPLACEMENT THERAPY ON LIPID PROFILE AND C-REACTIVE PROTEIN IN PATIENTS WITH SUBCLINICAL HYPOTHYROIDISM, HYPERTENSION AND OBESITY**

**Kharkiv National Medical University (Department of Clinical Pharmacology State institution "National Institute of therapy named after L.T. Malaya NAMS of Ukraine"), Kharkiv, Ukraine**

**Introduction.** Subclinical hypothyroidism (sHT) is an independent risk factor for atherosclerosis and myocardial infarction. Different factors in patient with sHT could lead to increase the likelihood of atherosclerosis and hypertension (Ht) development.

**The aim** of this study was to assess whether sHT is associated with dyslipidemia, high-sensitivity C-reactive protein (CRP) elevation as well as arterial hypertension in



patients with sHT, Ht and obesity under 24 weeks L- thyroxin replacement therapy.

**Materials and methods:** First group -106 patients with sHT, Ht I-II degree and obesity, control group - 26 sex and age matched subjects with normal thyroid function were enrolled. Thyroid stimulating hormone (TSH), free T3, free T4, anti thyroperoxidase (TPO) antibodies, general lipid profile, CRP were measured in all the patients. Patients used therapy with L- thyroxin and were followed up after 6 months.

**Results:** our data revealed that there was a statistically significant ( $p < 0.05$ ) increase in CRP level in a 1<sup>st</sup> group in comparison with control group ( $4.1 \pm 0.6$  mg/l and  $1.7 \pm 0.2$  mg/l, respectively). There was a direct correlation between high levels of TSH and increased CRP levels (respectively,  $r = 0.72$ ;  $p < 0.05$ ), TSH and total cholesterol (respectively  $r = 0.48$ ;  $p < 0.05$ ), TSH and lower levels of high density lipoprotein cholesterol (resp.  $r = -0.44$ ,  $p < 0.05$ ). These findings suggest that patients with sHT have more pronounced atherogenic lipid profile changes as well as higher CRP, which allows considering the sHT as an additional risk factor for progression of atherosclerosis. In this case, the purpose of therapeutic doses of L- thyroxine has a favourable effect on significant ( $p < 0.01$ ) decreasing serum TSH ( $6.8 \pm 0.4$  mkME/ml before treatment and  $2.6 \pm 0.1$  mkME/ml after treatment), blood lipid profile and a significant ( $p < 0.001$ ) reducing CRP level (from  $4.1 \pm 0.6$  mg/l to  $2.8 \pm 0.5$  mg/l).

**Conclusions:** thus, replacement therapy with L-thyroxin in patients with hypertension, obesity and related sHT is not only corrects the thyroid status, but also has an additional effect on CRP levels and reduces the risk of progression of coronary artery disease.

**Berezhnaya A.V., Kryvoshapka O.V..**

### **METHYLURACYL OINTMENT ON THE NITRIC OXIDE METABOLITES INFLUENCE IN RATS THERMAL BURNS FOCUS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pharmacology and Drug Prescription**

**Aim** - the study of nitric oxide metabolites in the focus of a thermal burn influenced by the methyluracyl ointment.

**Materials and methods.** Experiments modeling were performed on rats burns population WAG, divided into 3 groups: 1 - intact; 2 - animals with thermal injury without treatment (control); 3 - animals with thermal injury, which was applied by the methyluracyl ointment. For the animals of the 2nd and 3rd groups on the shaved portion of the rear part of the hip a thermal burn was induced with anesthesia. Methyluracyl ointment was applied on the burned surface of the 3rd group of animals. Monitoring processes of the burn wound healing was performed on 3rd, 7th, 14th, 21st, 28th days. In these terms, the state of the wound was recorded and the content of nitric oxide metabolites in the focus of rats was investigated.

**Results.** For the second group animals after thermal exposure a marked hyperemia with the consequent thin brown scab formation on the 2nd day was noticed. From the 3rd day, there was a trend of the thick scab softening in the central part, after the pressure from under it stood serous- purulent exudate. On the 7th day, the wound was as a deep zone of the necrosis filled with serous - purulent exudate. Over the next two weeks of observation (up to 21 days) in the center of the burn wound exhibited reduced areas of necrosis and epithelialization of the wound defect start was noticed. By the 28 days of burn wound was partially epithelialized to form a thin tender scar. In the control group the content of nitric



oxide metabolites in the focus was increased during the observation period in comparison with the intact animals. So on the third day the content of nitric oxide metabolites exceeded the normal by 2 times, on the 7th day - 2.9 times - reaching maximum values on the 14th day - 1.9 times, on the 21th day - 1.7 times, on the 28th day - in 1,4 times. 3rd group animals was influenced by the methyluracyl ointment for wound healing and it was more favorable than for the control group. Right after the burn injury surface was hyperemic and by the 2nd day was covered with a thin brown scab. Starting from the 3rd day there was a softening of the central part of the large scab, but when pressed it stood out serous exudates mainly. On the 7th day, the zone of the wound necrosis was filled with a serous exudate. Over the next two weeks of observation (up to 21 days) in the center of the burn wound area reduction of necrosis and epithelialization of the wound defect occurred much faster than in the previous group. By 28th day of burn wound was almost completely epitelized to form a gentle scar. In the skin influenced by the ointment the nitric oxide concentration was increased only during the first week of the observation (day 3 - 2.2 times, the 7th day - 2.1 times). The parameters normalization occurred on the 14th day, staying within physiological norm until the observation finish. At the same time during the 7 - 28th days nitric oxide concentration was significantly lower than for the control group ( on the 7th day - 1.4 times, on 14th - 1.8 times on 21th - 1.7 times and on the 28th day - 1.6 times ).

**Conclusion.** As follows from the results of the research, the trial burn is accompanied by a lengthy and significant increasing of the nitric oxide metabolites concentration in the focus (not less than 28- days). The Methyluracyl ointment application leads to a rapid (on the 14th day) nitrogen oxide to the physiological normal reducing that is more favorable for the wound healing process.

**Bidylo T., Butko Y., Aleksandrova A.V.**

**ECA - FAT BURNER AT ALL TIMES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pharmacology and Drug Prescription**

**Introduction.** ECA is known as a mixture of ephedrine, caffeine and aspirin. The combined properties of sympathomimetic ephedrine and caffeine acting on the CNS given mixture, allowing to increase fat loss of 1-3 kg per month. Especially effective mixture acts in symbiosis with aerobic loads and low-carb diet. Aspirin is designed to prolong the effect of the action of ephedrine. And although it was later found that he did not give significant improvements and blend perfectly valid and in his absence, for a long time in the fat burner added aspirin.

**Material and methods.** Was conducted a number of studies (The University of London's Department of Nutrition and Dietetics), covering different periods, which was attended by men and women who are overweight. Within two months, they received either herbal supplements (72 mg of ephedrine alkaloids and 240 mg of caffeine per day) or placebo. Those who took the supplement, on average, lost 2.1 pounds of fat, while the share of their "disadvantaged" comrades had just fewer than 200.

**Results.** Another study at the same university covers a longer period - 4 months. Scientists gave their wards or 15 mg / day dexfenfluramine (slimming), or "classic" 200 mg of ephedrine kofeina/20 mg three times a day. Upon completion of the experiment, the first



group was marked loss on average 6.8 kg. But on ephedrine and caffeine "experimental" lost weight by 8.2 kg.

**Conclusions.** In studies in healthy human ECA has not been a single serious complication during and after the use of drugs. Thus, a combination of ephedrine, caffeine and aspirin can be considered relatively safe. Exaggeration ECA hazard due to ignorance of evidence and prohibited drug trafficking

**Boyarskiy A.A., Ananko S.Y.**

## **THE WAYS TO IMPROVE THE QUALITY OF PATIENT'S LIFE WITH MULTIPLE SCLEROSIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pharmacology and Drug Prescription**

**Introduction.** Multiple sclerosis is the third in frequency (after cerebrovascular disease and epilepsy ) of CNS diseases . There are 4 forms of MS: relapsing -remitting , secondary progressive , primary progressive and relapsing - progressively .In 80-85 % of patients it is diagnosed with relapsing -remitting form of the disease , and in 10-15 % of cases it is detected primary- progressive MS , characterized by steady deterioration of neurological symptoms without marked periods of exacerbation and remission in 5% of patients - progressively - relapsing form of MS. In addition, many experts point to a malignant , rapidly progressive form of MS. Found that relapsing -remitting form of the disease in 10 years transformed into secondary progressive in 50% of patients over 15 years old - 70% of patients and in 25 years - 85% of patients.

**Results.** Currently, the pathogenetic treatment of multiple sclerosis in the world recorded six drugs alter the course of disease (PITRS). Three of them belong to the group of beta interferons. This interferon beta - 1a ( Avonex, Rebif) and interferon beta- 1b ( Betaferon, Betfer, Ronbetal ). Furthermore, treatment of multiple sclerosis a synthetic polymer of four amino acids - Glatiramer acetate cytostatic drug mitoxantrone and monoclonal antibodies to integrin molecules - natalizumab ( Tysabri) . In Ukraine recorded all of these drugs. All the drugs in controlled clinical trials have shown efficacy in reducing the frequency of relapses in relapsing-remitting multiple sclerosis, in addition, for Betaseron and mitoxantrone shows the ability to slow down the growth of disability in secondary progressive multiple sclerosis. None of the drugs has no significant effect on patients with primary progressive type of flow. Betaferon is administered subcutaneously every other day, Rebif - subcutaneously three times a week, Avonex - 1 day a week intramuscularly, Copaxone - subcutaneously daily, Tysabri - 1 intravenously once a month , mitoxantrone - intravenously at a special scheme. Mitoxantrone and Tysabri are more potent immunosuppressive than Copaxone and interferon beta and can more effectively suppress the inflammation of the central nervous system in multiple sclerosis, but their use is limited by the possibility of serious side effects - for cardiotoxicity of mitoxantrone and progressive multifocal leukoencephalopathy for Tysabri . The main side effects of interferon beta include flu-like symptoms (fever, muscle aches , joint pain, weakness , fatigue ), and Copaxone - local reactions and generalized post-injection reaction ( shortness of breath , palpitations, kollaptoïdnoe state). Currently there is approved the drug for the treatment of multiple sclerosis Alemtuzumab. Alemtuzumab is currently used for treatment of chronic lymphocytic leukemia , monoclonal antibodies against this cell receptor CD52 on T - lymphocytes and B- lymphocytes. Patients with relapsing-remitting multiple sclerosis early



Alemtuzumab is more effective than interferon beta- 1a (Rebif ) , but more severe autoimmune observed side effects such as immune thrombocytopenic purpura, thyroid lesions and infections .

**Conclusion.** The analysis of current approaches to the treatment of multiple sclerosis indicates the absence to date, the "gold standard" in the treatment of this disease. In these conditions, preference should be given to methods of proven effectiveness clinical trials. In light of this, special attention should be the method of high-dose with transplantation of hematopoietic stem cells, such as allowing to achieve a high frequency stabilization or improvement in the course of the disease without the need for maintenance treatment. Research devoted to the study of new treatments for multiple sclerosis , continues in many countries.

**Brachkova D.S., Kolesnik V.A., Myronchenko S.I.**  
**PROBLEMS OF GENDER PHARMACOLOGY**  
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**Introduction.** Most of drugs together with medications, which are specific only for women or only for men, are taken by patients of both genders. The concept “gender” includes a systemic complex of biological properties which distinguishes a male from a female according to their reproductive organs and functions in accordance with a corresponding chromosome complement. Nowadays it is known that action of many drugs has gender peculiarities both in terms of efficacy and safety (difference consists in frequency of side effects in men and women). Sexual dimorphism, which is defined as a discrepancy of anatomical, physiological, psychical and behavioral signs of individuals of this type depending on a sex, accounts for individual variability of the pharmacological response of an organism to medicinal products. As a consequence, the issues of gender pharmacology become more and more topical. “A gender” is considered as a social sex, socially determined identity roles and sphere of activities of men and women which depend not on biological sex differences, but on social organization.

**Results.** There are available data proving that women are more sensitive to action of some medicinal products in comparison with men. For example, the side effects in case of taking drugs, which inhibit CNS (excitement), antiarrhythmic (arrhythmogenic effect) and thrombolytic agents, are more frequent in women. On the other hand, men are less sensitive to action of narcotic analgesics (they need a higher dose of morphine than women do) and more sensitive to anti-platelet action of acetylsalicylic acid in prophylaxis of stroke. There are also specific gender differences of pharmacokinetics of a wide range of drugs. Due to the fact that androgenic hormones stimulate synthesis of microsomal hepatic enzymes, elimination of some medicinal products (acetaminophen, verapamil, benzodiazines, propranolol) is faster in men. Existent gender differences in ethanol metabolism are connected with higher degree of activity of alcohol dehydrogenase in men. Paracetamol clearance is faster in male than in female. At time of menopause absorption of calcium ions in the intestine is delayed in women. Bioaccessibility of verapamil is higher in women than in men. Oxidation of diazepam is faster in women. For this reason gender differences in action of medicinal products can be the basis of formation of gender approach to treatment. As gender specificity of drugs is not always taken into account in researches in the field of



clinical pharmacology, the problem of gender specificity of drugs and necessity of wider involvement of women into clinical researches attracts more and more attention of scientists over the last years. Up to the mid-90s women were not involved into clinical testing (women of postmenstrual age were involved into some studies). Since 1993 Food and Drug Administration elaborated Guidelines for clinical trials. According to their results, differences in pharmacokinetics in children, in geriatric practice and in representatives of both sexes (with development of special dosage regimen) must be mentioned. In 2005 European Medicines Agency elaborated recommendations concerning obligatory involvement of volunteer women into clinical trials, thorough fixation of gender differences in testing of new drugs. In this regard the role of gender differences in carrying out of clinical trials of medicinal products has increased.

**Conclusions.** Therefore development of gender pharmacotherapy is the topical problem of pharmacology. One of the priority areas of improvement of the efficacy and safety of treatment is pharmacotherapy personification.

**Butenko E.A., Lisicina A.I., Grin V.V.**

**“PHARMACEUTICAL ADDICTION” – CONSEQUENCES OF  
ALTERNATIVE APPLICATION OF MEDICINES**

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**Introduction.** Nowadays there are a lot of medications at pharmacies. Most of them are sold without prescription. The availability of some remedies creates a global problem called “pharmaceutical addiction”. In this article we will view mechanism of action and side effects of the most widely used medications which addicts use to “get high”.

**Results.** 1. Codeiniphosphas, Astapect-codein, Codelac, Cofex – this is not a complete list of codeine-content antitussive and analgesic remedies. Codeine is agonist of opioid receptors. It depresses activity of cough center. That is why codeine is used to treat exhausting convulsing cough. Passing through the liver filter a part of codeine undergoes O-demethylation with morphine formation. As is well known morphine causes euphoria and drug effects. Using codeine-content medicines is fraught with severe consequences. At the worst overdosage of codeine-content drugs may result in respiratory center paralysis and respiratory standstill. It is inadmissible to abuse mentioned medications with alcohol because toxic influence of ethanol on tissues might be strengthened. 2. Lyrica is a preparation with antiepileptic and anticonvulsive action. The active component of Lyrica is alkylated analogue of GABA. This preparation decreases of releasing of pain neurotransmitters (such as glutamate, norepinephrine and substance P). As a result under the action of this medication impulse conduction is selectively depressed. The preparation has an analgesic effect on neuropathic and postoperative pain syndrome, including such conditions as hyperalgesia and allodynia. Simultaneous intake with ethanol potentiates its toxic influence. Lyrica brings on addiction in a short space of time and causes severe side effects right up to cardiac arrest, acute hepatic failure, liver cirrhosis and thrombocytopenia. 3. Dimedrolum has antihistamine, antiallergic, sedative, local anesthetic effect. Dimedrolum blocks up cholinoreceptors of autonomic ganglion and reduces blood pressure. It is also blocks up H3-histamine receptors of brain and depresses central cholinergic structures. High dosage intake might cause delirium. Dimedrolum is also very soluble in alcohol. That is why taking 5-10



pills with alcohol guarantees quick development of delirium, however taking 2-3 pills might cause deep sleep.

**Conclusions.** This is far not the full list of medications which are used as drugs. “Pharmaceutical addiction” is a special branch of medical practice because it causes horrifying consequences at later stages of addiction.

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**EXPERIMENTAL STUDY OF IRON NANOPARTICLES' EFFECTIVENESS IN TREATMENT OF MODEL IRON DEFICIENCY ANEMIA**

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**Introduction.** According to the WHO data iron deficiency anemia (IDA) is one of the most wide-spread pathological states as well as social problem, which leads to unfavourable medical consequences, such as decreased working capacity in adults, retarded cognitive development in children, and increase in maternal mortality. Searching and development of new class pharmacological substances with antianemic properties for effective struggle with IDA is very urgent. Iron nanoparticles are possessed by high potential in this area according to the well-known biological activity of metal nanoparticles on the molecular level.

**The aim** is to establish iron nanoparticles' effectiveness in treatment of model IDA as a step of novel antianemic preparation development.

**Materials and methods.** Iron nanoparticles (FeNPs) with spherical shape and average size 40 nm have been synthesized in F.D. Ovcharenko Institute of Biocolloidal Chemistry according to the original colloidal-chemical method. Biological activity of FeNPs as potential pharmacological substance with antianemic properties has been studied on the model of IDA using Wistar rats' females. IDA in experimental animals was modelled using iron deficiency diet. Control intact animals received a diet with normal iron content. The experimental treatment courses of the model IDA treatment included tenfold peroral (once per day, for 10 days) or fivefold intravenous (once per 3 days) introductions of FeNPs in either therapeutic (12 mg/kg) or 1/10 of therapeutic (1,2 mg/kg) doses. As comparison drugs some commercial preparations based on pharmacological substance – ferri (III) hydroxydipolymaltosumcomplexus – have been used in therapeutic dose. The rats were euthanized by decapitation under anesthesia. Blood parameters, such as hemoglobin level, iron concentration in blood serum, and transferrin saturation percentage, have been analyzed. The status of microflora in lower part of model animals' gastrointestinal tract after 10 days course of FeNPs introduction, in comparison with reference drug, has been determined using standard microbiological protocols.

**Results.** It has been shown reliable increasing of main blood parameters up to normal level of healthy animals comparatively with anemic control within duration of experimental treatment course under the conditions of peroral as well as intravenous route of FeNPs' introduction in therapeutic and 1/10 of therapeutic doses. The effectiveness of comparison drugs was reliably lower. The absence of dysbacteriosis according to the microbiological



tests (widespread side effect of existing commercial antianemic iron preparations) has been observed under the treatment course of experimental FeNPs introduction.

**Conclusion.** FeNPs are possessed by remarkable antianemic activity in the dose that is 10 times lower than the generally accepted therapeutic dose as well as favourable effects on the gastrointestinal tract (the absence of side effects such as constipation and intestinal dysbacteriosis). Such properties and benefits indicate significant potential of the synthesized FeNPs as pharmacological substance with antianemic properties for new class antianemic preparations' development.

**Ekott Nyikkeabasi**

### **SIDE EFFECTS OF CORTICOSTEROIDS ON THE VISUAL SYSTEM**

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**Introduction.** Corticosteroids are drugs that are similar to the natural hormones produced in the cortex of the adrenal gland. Being analogous to natural hormones, they exert effects on different body systems even at low concentrations thereby increasing the propensity of adverse effects occurring -on acute or chronic administration. In the visual system, corticosteroids have been implicated in glaucoma and cataracts.

**Results.** Long-term administration of corticosteroids has been implicated in the development of cataracts and/or glaucoma. Steroid induced glaucoma is usually associated with topical use of corticosteroids, but can also occur with other forms of administration of drug. This type of glaucoma usually occurs by the open angle mechanism and is likely to be reversed when the drug is discontinued. One of the proposed mechanisms is that steroids stabilize the lysosomal membrane of the gonocytes leading to a reduction in the release of lysosomal hyaluronidase thereby decreasing or inhibiting hyaluronate depolymerisation. The mucopolysaccharides accumulated retain water leading to a narrowing of trabecular spaces. This leads to an increase in the resistance to the outflow of aqueous humour. A rise in intraocular pressure caused by this resistance can lead to damage of the optic nerve causing Steroid-induced glaucoma. Long term administration of corticosteroids has been implicated in the development of cataracts particularly posterior sub-capsular cataract. The precise mechanism of cataracts remains unknown due to difficulty in establishing different models. One of the proposed mechanisms suggests that glucocorticoids may be capable of inducing changes to the transcription of genes in lens epithelial cells that are related to many cellular processes. A novel mechanism has been proposed, in which steroids do not directly act on the lens but rather affect the balance of ocular cytokines and growth factors. By interfering with the balance, steroids lead to the formation of cataracts. Only surgical options exist for the treatment of cataracts.

**Conclusion.** It is important that doctors and patients pay attention to the side effects of corticosteroids, because the propensity of corticosteroids affecting different systems of the body might make them dangerous especially in chronic use. Also, patients on corticosteroids should have their intra-ocular pressures monitored to prevent glaucoma.

**Ezhova M.I**

### **THE SIGNIFICANCE OF PHARMACEUTICAL INFORMATION OF DIFFERENT TYPES FOR PHARMACY CONSUMERS**

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**Introduction.** One of the most important functions of the pharmacy employees is to advise consumers on the basic properties of different pharmaceutical products, which range has hugely expanded due to perfumes and cosmetics, dietary supplements, baby food, etc. The main aim of the research was to figure out the differences in pharmacy staff and consumers opinion on estimation of significance of different types of pharmaceutical information and to determine the most significant ones.

**Materials and methods.** The research was carried out in several stages. The first stage was based on content-analysis and basic criteria for significance estimation of different types of pharmaceutical information on perfumes and cosmetics were set. They are: name of the product; country of origin; prescription; composition; effect; method of application; restrictions; conditions of storage; advantages; information about state registration; expiry date; weight/ volume/ number of items in the package; regulatory documents confirming the quality of the product; cost foundation; manufacturer. On the second stage paired questionnaires were developed. Respondents were consumers and employees of pharmacies in Moscow and Moscow region. Both questionnaires contained the same questions that provided to find matches between consumers and employees opinion. At the final stage we tried to apply the Theory of breaks (by Parassurman), but collected data revealed the insignificant differences between consumers and pharmacy staff opinion. For instance, the information on mechanism of action and effect were considered to be the most significant. The maximum difference in respondents' opinion was observed in information on manufacturer, but this criterion was considered to be insignificant by the most of respondents.

**Results.** By employees' opinion the most significant types of pharmaceutical information are: country of origin, prescription, effect, restrictions, method of application and advantages of specific product. By consumers' opinion the most significant types of pharmaceutical information are: prescription, the country of origin, composition, effect, restrictions, method of application.

**Conclusions.** The most significant types of pharmaceutical information on perfume and cosmetics were determined. The data show no significant differences in pharmacy staff and visitors opinion about the importance of the main types of pharmaceutical information on cosmetic products. Consequently, the needs of pharmacies consumers to get the additional pharmaceutical information on perfume and cosmetics are satisfied in sufficiently high level.

**Garbaruk I.V., Tyrsa N. S.**

**APPROPRIATENESS OF HALOPERIDOL FOR CORRECTION OF NON-MENTAL DISORDERS**

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**Introduction.** Haloperidol - a derivative of butyrophenone is a neuroleptic and tranquilizer. It has a pronounced antipsychotic and antiemetic effect, it is able to cut off quickly all the excited states. The effectiveness of haloperidol is especially great in the treatment of manic and acute delirious states, personality changes, tics, Huntington's chorea, hiccups, stuttering, with anticancer therapy, in order to prevent vomiting. Positive results



were obtained in the treatment of schizophrenia. The drug is also used in the treatment of alcoholic, epileptic psychosis, organic and a variety of neurotic disorders in adults and children (including hyper responsiveness, infantile autism). But taking Haloperidol, the patient is faced with significant complications. When using it, there is a high probability of extrapyramidal disorders in the form of parkinsonism, akathisia, dystonic phenomena. At the beginning of treatment with Haloperidol anxiety, agitation, euphoria or depression, lethargy, seizures, epilepsy, exacerbation of psychosis and hallucinations may occur. There is a possibility of occurrence of such symptoms: diabetes insipidus, tardive dystonia and neuroleptic malignant syndrome, acute glaucoma, amenorrhea, frigidity, gynecomastia, impotence, hyperprolactinemia and galactorrhea. The Cancellation of Haloperidol should be gradual because of the possible emergence of withdrawal syndrome.

**Conclusion.** Thus, the therapy of Haloperidol is rather ambiguous and causes different opinions. And above all, at the beginning of treatment with this drug, it is necessary to correlate the heaviness of the violations with the severity of side effects.

**Halo Azad Khidwrbagi, SmerMutlag, Al-KetanMutaz, Titova A., Shkolnik V.  
AZITHROMYCIN AND LEVOFLOXACIN USE AND INCREASED RISK OF  
CARDIAC ARRHYTHMIA AND DEATH**

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**Introduction.** According to US, Denmark and European research they dictated that Azithromycin use has been associated with increased risk of death among patients at high baseline risk, but not for younger and middle-aged adults. The Food and Drug Administration issued a public warning on azithromycin, including a statement that the risks were similar for levofloxacin. We conducted a retrospective cohort study among US veterans to test the hypothesis that taking azithromycin or levofloxacin would increase the risk of cardiovascular death and cardiac arrhythmia compared with persons taking amoxicillin.

**Material and methods.** They studied a cohort of US veterans (mean age, 56.8 years) who received an exclusive outpatient dispensation of either amoxicillin (n=979,380), azithromycin (n=594,792), or levofloxacin (n=201,798) at the Department of Veterans Affairs between September 1999 and April 2012. Azithromycin was dispensed mostly for 5 days, whereas amoxicillin and levofloxacin were dispensed mostly for at least 10 days.

**Results.** During treatment days 1 to 5, patients receiving azithromycin had significantly increased risk of death (hazard ratio [HR]=1.48; 95% CI, 1.05-2.09) and serious arrhythmia (HR=1.77; 95% CI, 1.20-2.62) compared with patients receiving amoxicillin. On treatment days 6 to 10, risks were not statistically different. Compared with patients receiving amoxicillin, patients receiving levofloxacin for days 1 to 5 had a greater risk of death (HR=2.49, 95% CI, 1.7-3.64) and serious cardiac arrhythmia (HR=2.43, 95% CI, 1.56-3.79); this risk remained significantly different for days 6 to 10 for both death (HR=1.95, 95% CI, 1.32-2.88) and arrhythmia (HR=1.75; 95% CI, 1.09-2.82).

**Conclusions.** Compared with amoxicillin, azithromycin resulted in a statistically significant increase in mortality and arrhythmia risks on days 1 to 5, but not 6 to 10. Levofloxacin, which was predominantly dispensed for a minimum of 10 days, resulted in an increased risk throughout the 10-day period. During those researches they showed that using of azithromycin and levofloxacin they have high risk and they cause cardiac arrhythmia and



later lead to death which has showed during investigation among those patients who has COPD, UTI and other pulmonary disease and have treatment by those drugs and dictate those complications as using of them.

**Hrankina A. V., Aleksandrova A.V.**

**STATINS AGAINST CELLULAR AGING**

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**Introduction.** Statins in modern medicine are commonly used for reducing the probability of heart attack and stroke in patients of risk group. Their effect is due to blocking the hepatic enzyme, which is involved in cholesterol synthesis. According to European researchers, statins can slow the rate of telomere shortening of chromosomes in laboratory mice - which means that they can be potentially used as means against cellular aging.

**Results.** Drugs of the statin class do not only prolong the human life by reducing the concentration of cholesterol in the blood and the risk of cardiovascular diseases, but they also increase the life span itself. In particular, statins may reduce the rate of reduction in telomere length, a leading factor of natural aging. Normally, each time a cell divides the telomeres (end portions of chromosomes) are shortened (the so-called end underreplication). As a result of the enzyme telomerase, which adds the recurring sequences to the end of DNA chain on telomeres, telomere length of chromosome cells is increased or maintained at the constant level, allowing the cell to divide indefinitely long. Ordinary somatic cells of the body are deprived of telomerase activity. Telomerase is expressed in stem, sex and some other types of the body cells, which can be divided constantly. A study has been conducted with two groups of patients (V. Boccardi, M. Barbieri, 2013),. Patients of the first group took statins for a long time; patients of the second (control) group did not take any medication. Scientists measured telomerase activity in all patients. Results showed that in patients treated with statins, telomerase activity in white blood cells was higher compared to the patients of control group.

**Conclusions.** The most important positive feature of statins is their ability to reduce the risk of cardiovascular disease by inhibiting telomerase significantly, while the use of these drugs is safe for most people. According to researchers, the negative properties of using statins are associated with the development of side effects, for example, with muscle damage. If it is confirmed that statins may slow the aging process itself, not only its symptoms, they will be more powerful drugs than it might have been expected.

**Knyazkova I.I., Schenyavskaya E.N., Kirienko M.A.**

**IMPACT OF COMBINED ANTIHYPERTENSIVE THERAPY WITH L-ARGININ ON  
ENDOTHELIAL CONDITION AND FUNCTION IN PATIENTS WITH CHRONIC  
KIDNEY DISEASE**

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**Aim:** To study the association between endothelial integrity and function in patients with chronic kidneys disease (CKD) and essential hypertension (EH) before and after l-arginine treatment.



**Materials and methods:** 112 patients (pts) with EH, from which 48 pts were with chronic pyelonephritis (CP), 42 pts were with II stages of EH and 22 pts were with acute coronary syndrome (ACS). The control group consists of 18 practically healthy persons of comparable age. Mean age of examined patients was  $(49 \pm 7)$  years. Concentration of blood soluble VE-cadherin (CD-144) was measured with immunofluorescence test-system (Bender MedSystems, Technoclone GmbH, Austria). The plasma concentration of nitric oxide stable metabolites was measured by set of reagents of total NO (RDS, England). The patients with EH were treated with angiotensin-converting enzyme inhibitors or angiotensin II receptors blockers. 27 pts with CP and 23 pts with EH in addition to the basic therapy received daily 100 ml 4,2% L-arginine during 2 weeks.

**Results:** The sVE-cadherin plasma concentrations in blood in pts with ACS were significantly higher, than in patients with EH. In pts with CKD the lowering of sVE-cadherin level (31,8%) were marked after therapy with L-arginine. In patients with EH after treatment the significant lowering of sVE-cadherin level was marked (26,4%). It was suggested that the levels of sVE-cadherin was changed simultaneously with altering of integrity of coronal arteries endothelium. In patients with CKD and EH after L-arginine therapy the nitrite and total NO measured as nitrite and nitrate sum concentrations, were increased. At the end of follow-up period the positive correlation between concentration of nitrite and nitrate sum and blood pressure level ( $r = +0,52$ ,  $p < 0,05$ ) was revealed, that may be related to the increase of the NO synthesis or NO release from the storage after treatment.

**Conclusions:** It was shown that addition of intravenous therapy with L-arginine to standard antihypertensive therapy is associated with positive changes in endothelium integrity parameters and its NO-production function.

**Markiv A.I.**

### **SAFETY OF BETA-BLOCKERS: METABOLIC EFFECTS**

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**Introduction.** Beta-blockers ( $\beta$ -AB) play an important role in treatment of cardiovascular diseases (arterial hypertension, coronary heart disease, arrhythmias, etc.). However, the negative effects of  $\beta$ -AB, particularly non-selective, on the lipidic (dyslipidemia) and carbohydrate (reduction of tolerance to glucose) metabolism limit their usage in patients with metabolic syndrome and diabetes. Main metabolic effects of  $\beta$ -AB are connected with their influence on the adrenergic receptors of the main regulatory organs: pancreas ( $\beta_3$  ( $\beta_2$ ) - carbohydrate metabolism, liver ( $\beta_1$  ( $\beta_3$ ) – lipidic metabolism,  $\beta_2$  ( $\beta_1$ ,  $\beta_3$ ),  $\alpha_1$  - carbohydrate metabolism, fatty tissue ( $\beta_3 > \beta_1$ ,  $\alpha_2$  - lipidic;  $\beta_3$  - carbohydrate metabolism), thyroid gland ( $\beta_2$  - lipidic and carbohydrate metabolism). The complexity of the mechanisms of metabolic disturbances in usage of  $\beta$ -AB is that cells of these organs have adrenergic receptors with the opposite effects at the same time.

**Aim.** To make an analytic review of literature about influence of  $\beta$ -AB on the carbohydrate and lipidic metabolism, their safety in usage in patients with metabolic syndrome and diabetes.

**Results.** The main effect of  $\beta$ -AB on lipidic metabolism is the deceleration of lipolysis processes that leads to the certain clinical consequences. Fatty tissue that contains a lot of  $\beta_3$ -receptors plays a significant role. The blockade of these receptors leads to



inhibition of lipoproteinlipase activity (catalyzes the blood lipids and splitting of triglycerides to free fatty acids). The disturbance of lipidic metabolism is characterized by increase of the level of total cholesterol with increasing of atherogenic fractions (low density lipoproteids and very low density lipoproteids), triglycerids and decrease of high-density lipoproteins. That changes lead to increase of blood serum`s atherogenicity. The blockade of  $\beta_3$ -receptors and  $\beta_2$ -receptors can lead to the weight increase, decrease of sensitivity of tissues to insulin, inhibition of peripheral glucose uptake and insulin-dependent decrease in skeletal muscle microcirculation. The deceleration of general metabolism and the change of providing thermal balance are also very important. The negative impact of  $\beta$ -AB on carbohydrate metabolism is connected with their effects on the  $\beta_2$ - and  $\beta_3$ -adrenergic receptors.  $\beta$ -AB increase the risk of hypoglycaemia and mask its manifestations, reduce the production of insulin and insulin-dependent peripheral glucose uptake, impair lipolysis, reduce the production of contrainsular hormones that more and more break the internal regulation of insulin release. The blockade of  $\beta_3$ -receptors in pancreatic islands leads to the progress of insulin resistance and hyperglycemia. However, modern cardioselective  $\beta_1$ -AB block principally  $\beta_1$ -receptors which are not the main cells of the pancreas, liver, fatty tissue, thyroid gland. That mediates the carbohydrate metabolism. In this way, the higher selectivity of  $\beta$ -AB is, the less their ability to disrupt the metabolism of carbohydrates and lipids is. Although, the large doses of the  $\beta_1$ -AB act as non-selective, they may cause certain metabolic effects. The usage of highly selective (nebivolol) and nonselective  $\beta$ -AB with additional  $\alpha_1$ -blockade, vasodilating  $\beta$ -AB (carvedilol) allows to avoid adverse metabolic disorders.

**Conclusion.** In patients with metabolic syndrome, diabetes, obesity, it is preferable to use a selective  $\beta_1$ -AB, metabolically neutral, with additional vasodilating properties.

**Olefir A.S., Skrebec N.S., Karnaukh E.V.**

**RECOMBINANT COLONY-STIMULATING FACTORS-INNOVATIVE  
BIOTECHNOLOGIES IN CELL-THERAPY OF LEUKOPOIESIS PATHOLOGY**

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**Department of Pharmacology and Drug Prescription**

**Introduction.** The most important innovation of modern biotechnology is creating by genetic engineering of the recombinant human stimulants of leukopoiesis and immunomodulators. This current trend in cell therapy of leucopenia and immunodeficiency disorders of various origins, associated with suppression of bone marrow leukopoietic function. Demand for these drugs is determined by the high prevalence of leukopenic states and clinical need purposefully of immune processes control - long infections and inflammatory diseases of bacterial, viral, fungal and protozoal origin; chemotherapy, radiotherapy and radiation therapy in oncology; radiation disease, recurrents or esophageal ulcer; burn disease, severe intoxication.

**Results.** Long-term use of drugs that have hematotoxic side effects are antiproliferative, antithyroid, sulfonamides, nonsteroidal anti-inflammatory drugs from the pyrazolone group (Phenylbutazone, Analgin, Amidopyrine), phenothiazine group of the neuroleptics (Chlorpromazine, Ftorfenazine, Promazine, Thioridazine and others). The creation and introduction of recombinant colony-stimulating factors (CSF) allows fast and clinically efficient to correct disorders of all stages of the granulocytes and/or macrophages maturation



and differentiation, and this due to such group as-granulocyte-CSF (G-CSF), macrophage-CSF(M-CSF),granulocyte-macrophage-CSF(GM-CSF). Endogenous growth factors glycoproteins cytokines erythropoietin, interleukin-3 and endogenicCSF were taken as prototype. In the USA, results of these studies are strictly controlled by FDA (Food and Drug Administration, the Federal Office for sanitary inspection by the Food and Drug Administration). Currently approved by the FDA for medical use of recombinant leukopoietic CSF from the group G-CSF - Filgrastim (Neupogen, Leucostim, Leicita, Granogen, Myelastra, Neupomax, Neitrostim); Lenograstim (Granocyte); Pegfilgrastim (Neulastim); from the group of GM-CSF - Molgramostim (Leucomax, Neustim), Sargramostim. But genetic recombination of exogenic synthetic analogues, manifested by the presence of not only their proven clinical efficiency, but serious side effects (fever, weakness, convulsions, paresis, increased intracranial andchangesin blood pressure, indigestion, arrhythmia and heart failure, the strongest nonspecific pain expressed hemogram changes, allergies), which are less pronounced indrugs from the groupG-CSF.

**Conclusion.** This is a strategicdirectionof biomedicinefor the worldmedical science and it has becomean integral part ofthe therapeuticarsenalof leading clinics ofGermany, USA, Israel and other countries.

**Rostovtseva M. S.**

#### **VITAMIN A OVERVIEW INFORMATION**

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**Introduction.** Vitamin A is a vitamin. It can be found in many fruits, vegetables, eggs, whole milk, butter, fortified margarine, meat, and oily saltwater fish. It can also be made in a laboratory.

**Results.** Vitamin A is used for treating vitamin A deficiency. It is also used to reduce complications of diseases such as malaria, HIV, measles, and diarrhea in children with vitamin A deficiency. Women use vitamin A for heavy menstrual periods, premenstrual syndrome (PMS), vaginal infections, yeast infections, “lumpy breasts” (fibrocystic breast disease), and to prevent breast cancer. Some women with HIV use vitamin A to decrease the risk of transmitting HIV to the baby during pregnancy, childbirth, or breast-feeding. Men use vitamin A to raise their sperm count. Some people use vitamin A for improving vision and treating eye disorders including age-related macular degeneration (AMD), glaucoma, and cataracts. Vitamin A is also used for skin conditions including acne, eczema, psoriasis, cold sores, wounds, burns, sunburn, keratosis follicularis (Darier’s disease), ichthyosis (noninflammatory skin scaling), lichen planuspigmentosus, and pityriasisrubrapilaris.It is also used for gastrointestinal ulcers, Crohn’s disease, gum disease, diabetes, Hurler syndrome (mucopolysaccharidosis), sinus infections, hayfever, and urinary tract infections (UTIs).Vitamin A is also used for shigellosis, diseases of the nervous system, nose infections, loss of sense of smell, asthma, persistent headaches, kidney stones, overactive thyroid, iron-poor blood (anemia), deafness, ringing in the ears, and precancerous mouth sores (leukoplakia).Other uses include preventing and treating cancer, protecting the heart and cardiovascular system, slowing the aging process, and boosting the immune system. Vitamin A is applied to the skin to improve wound healing, reduce wrinkles, and to protect the skin against UV radiation.



**Sapay A. V., Prodnun O. N., Aleksandrova A. V.**  
**PSYCHOLOGICAL ADDICTION TO COAXIL**  
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**Introduction.** Coaxil is known as an antidepressant from the group of selective serotonin reuptake inhibitors. It has mild sedative and anxiolytic effects. Coaxil quickly improves mood in moderately expressed endogenous, neurotic, and reactive depressions as well as in anxieties of various origins.

**Results.** Narcologists had been proposed Coaxil as a treatment for heroin addiction and was included a treatment regime of abstinence manifestation following usage of other drugs, but at lower dosages. However, drug users started to use it for intravenous injections. After injection of toxic doses of the drug, it develops vivid feeling of opioid intoxication that is characterized by pronounced euphoria, “feeling of love to everyone”, extreme talkativeness, and aggressiveness. At the same time, Coaxil causes opioid drowsiness as well as objective symptoms such as miosis, scabies, and analgesic effects. Nonetheless, no one drug-test can show presence of opioids in a human body. Those who at least once felt “Coaxil high” do not realize what is happening and believe they control the situation, while one or two injections of Coaxil is enough for becoming heavily addicted. Abstinence syndrome is much worse than heroin addiction. Specifically speaking, it is more vexatious, prolonged, and has strong impact on mental state. The syndrome reveals through all sorts of mental disorders. Prime symptoms are depression, neurasthenia, conduct disorder, powerful compulsive attraction to the drug, and goosebumps with constantly migrating myalgia. Pain could be so excruciating that drug addicts use opioids as replacement therapy, which briefly alleviate suffering. Coaxil addicts if they are not treated properly pose threat to themselves and to others.

**Conclusions.** Nowadays, we cannot exclude unique psycho-pharmacological characteristics of Coaxil, but at the same time, we should control its usage for medical purposes. Coaxil is a powerful medicine, but is capable of killing too ...

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**Introduction.** Thoughts on maintaining health and maximizing duration of life were always within one of the main interests of humanity. A characteristic feature of the modern era is an immense variety of unfavourable factors, affecting the human body: natural conditions, external harmful factors, including ionizing radiation, toxic substances, unbalanced nutrition and, of course, physical and emotional stress. This leads to the utter exhaustion of adaptive and compensatory mechanisms, emerging professional diseases and favours premature aging. This determines the urgency of the development and clinical introduction of new effective tools and methods for correcting the condition and functions of the body, increasing its resistance to unfavourable factors, slowing the aging processes and increasing the duration of life. As a result of more than 30 years of scientific and clinical studies (starting from 1971), a method of complex prevention of age pathology was



introduced. Using peptide bioregulators, it slows the aging processes and increases life expectancy, including the correction of disorders of homeostasis.

**Results.** It was the first time in medical practice when a new class of medicine was offered, that can reduce functional imbalances and prevent from the development of pathological processes in that organs and tissues, which were taken from healthy young animals. Currently the new technology of getting biologically active food supplements was developed in the Institute of Bioregulation and Gerontology, RAMS. These supplements have been generally termed as "tsitamins" and represent balanced set of biologically active substances of organotropic action, taken from animal organs and tissues, including physiological concentrations of mineral substances, trace elements and vitamins in easily digestible form. Not being proper medical substances, they are used as natural adaptogens due to their physiological regulating influence on the various functional systems of the body. The usage of tsitamins is rather effective during the reconstruction period after various stress conditions (for example chemical production factors' impact or psycho-emotional and physical stress or ionizing radiation). An important aspect in the usage of tsitamins is taking them on so-called "borderline" states of the organism such as metabolic abnormalities which are typical for different age periods of human life, and especially clearly observed in children and teenagers; female and male climacterics; age-related decline of reserve capacity of the body and the consequent predisposition to various diseases and pathological conditions. Tsitamins regulate and restore the body's defense mechanisms that can prevent the emergence and development of various diseases and pathological conditions, as well as accelerate the rehabilitation of patients after diseases (for instance, diseases of the immune, nervous, cardiovascular, respiratory, urinary and other systems; conditions after surgeries and injuries, acute and chronic infectious-inflammatory diseases, burns and frostbites, post-radiotherapy and chemotherapy).

**Conclusions.** The uniqueness of a new class of biologically active food supplements consists in a highly effective influence of these substances on the cells of tissues and organs without presence in their chemical structure any foreignness substances, toxic and other side effects. Because of this fact, taking tsitamins is reasonable and necessary for each person. In order to restore the basic functions of the organism it is recommended to take a certain combination of tsitamins 2-3 times a year, which will allow to reduce the risk of emerging various pathological conditions and diseases.

**Stepanova E.V., Schenyavskaya E.N., Kirienko M.A.**

**THE LEVELS OF VE-CADHERIN IN PATIENTS WITH CHRONIC KIDNEY DISEASE, ACUTE CORONARY SYNDROME AND ESSENTIAL HYPERTENSION.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pharmacology and Drug Prescription**

**Aim:** To study the levels of vascular endothelial cadherin (VE-cadherin) in patients with chronic kidney disease (CKD), acute coronary syndrome (ACS) and essential hypertension (EH).

**Materials and methods:** The 32 patients with CKD and 34 patients with EH and 16 patients with ACS in age ( $49 \pm 7$ ) years were examined. A control group was made by 6 practically healthy persons in comparable age. Concentration of blood soluble VE-cadherin was measured by immunofluorescent test-system Bender MedSystems (Austria).



**Results:** At patients with EH the considerable increase of VE-cadherin concentration in comparison with practically healthy persons was marked, (0,81+0,12) ng/ml against (0,48+0,07) ng/ml ( $p<0,05$ ), respectively. The given fact testifies to violation of endothelium integrity in the conditions of origin of pathology. At patients with ACS and CKD maintenance VE-cadherin was for certain higher (1,21+0,24) and (1,11+0,19) ng/ml accordingly, comparison in both group of patients on EH ( $p<0,05$ ), and control ( $p<0,001$ ). Increase of maintenance of soluble VE-cadherin, which characterizes intercellular adhesion, testifies to substantial violations of structural integrity of endothelial monolayer at this category of patients.

**Conclusions:** Patients with CKD and ACS have more deep violations of the vascular endothelium state, than patients with EH, that represents increase of violations of endothelium in the conditions of cardio-renal complications joining.

**Tverezovskiy V.M., Sanina I.I.**

**ROLE OF DISLIPIDEMIA IN FORMATION OF METABOLIC SYNDROME  
IN PATIENTS WITH NONALCOHOLIC STEATOHEPATITIS**

**Kharkov national medical university, Kharkiv, Ukraine**

**Department of Clinical pharmacology**

**Supervisor: Prof. M.D. Bobronnikova L.R.**

**Aim:** to estimate the influence of dislipidemia in formation of metabolic syndrome in patients with NASH.

**Materials and methods.** 35 patients (13 males and 22 females) with NASH. Middle age was  $48,2\pm 3,2$  year. Control group ( $n=20$ ) was the most comparable in age and sex to the surveyed patients. Diagnosis was made with ultrasonographic signs of fatty infiltration of liver accompanying with biochemical markers (increased level of aminotransferases (AST, ALT), gamma-glutamyltranspeptidase (GGT)). We studied the features of carbohydrate exchange disorders (levels of insulin, C-peptide, insulin resistance index HOMA-IR (HOMA-IR)), and ultrasonography of common carotid with the measurement of intima-media thickness (CIMT).

**Results.** Waist-line in patients was  $106,8\pm 8,2$  cm, body mass index (BMI) –  $33,4\pm 4,9$  kg/m<sup>2</sup>. In 53,4% patients had arterial hypertension (middle AP –  $159,4\pm 19,3$  mm hg. and  $97,1\pm 9,6$  mm hg.;  $p<0,05$ ), in 16% of cases type 2 DM. In 92% patients we found increasing of ALT and AST levels: in 85% less than 3 times, in 7% more than 3 times higher. Correlation of AST/ALT was  $1,01\pm 0,3$  ( $p<0,05$ ). Content of total cholesterol on average was on 22% higher than in the control group ( $p<0,05$ ), TH – on 26% ( $p<0,05$ ), cholesterol LDL – on 28% ( $p<0,05$ ), and cholesterol HDL – on 26% lower ( $p<0,05$ ). Correlation of TH/cholesterol HDL was on 32% higher than in control group ( $p<0,05$ ). HOMA-IR index was  $6,1\pm 3,8$  and it correlated with BMI ( $r=0,64$ ;  $p<0,05$ ), and TH/cholesterol HDL ratio ( $r=0,44$ ;  $p<0,01$ ), cholesterol LDL ratio ( $r=0,47$ ;  $p<0,001$ ), level of TH ( $r=0,34$ ;  $p<0,01$ ), ALT and AST ( $r=0,31$  и  $r=0,44$ ;  $p<0,05$ ). Level of insulin was 1,2 times higher comparing with control group ( $22,4\pm 10,7$   $\mu$ IU/ml;  $p<0,05$ ), C-peptide – 1,3 times,  $p<0,05$ ) and it correlated with AST ( $r=0,28$ ;  $p<0,05$ ) and ALT ( $r=0,31$ ;  $p<0,05$ ). CIMT in patients with NASH was 1,2 times higher than in control group ( $1,01\pm 0,04$  mm and  $0,76\pm 0,02$  mm respectively;  $p<0,01$ ) and it correlated with cholesterol LDL level ( $r=0,36$ ;  $p<0,01$ ), HOMA-IR index ( $r=0,34$ ;  $p<0,01$ ).

**Conclusions.** Atherogenic dislipidemia in patients with NASH promotes forming of metabolic syndrome, caused by insulin resistance, obesity, disorders of carbohydrate



exchange and subclinical signs of atherosclerosis, that increases cardio-metabolic risks in this category of people.

**Yefimenko A.S.**

**STATINOTHERAPY IN MODERN MEDICINE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pharmacology and Drug Prescription**

**Introduction.** Atherosclerosis is the main factor in the cause development of the cardio- and cerebrovascular diseases, causing disability and lethality of patients. One of the main component of prevention and treatment of such diseases is the application of the hypolipidemic medicines. The use of statins - the 3-hydroxy-3-methylglutharyl-coenzyme A reductase inhibitors - is considered as the “gold standard” in the treatment of dyslipidaemia because of the evident hypolipidaemic action. However, nowadays it is known, that statins have several effects, not associated directly with the hypolipidaemic action. These specific effects are called the pleiotropic ones.

**Aim.** To analyse the issues concerning the hypolipidaemic and pleiotropic effects of statins.

**Materials and methods.** The analysis of periodical medical issues, Internet resources publication.

**Results.** The hypolipidaemic action of statins consists in reduction the content of cholesterol, low-density lipoproteins, triglycerides and increasing the high-density lipoproteins in blood. According to the contemporary medical literature, the pleiotropic effects statins, not associated directly with cholesterol and can be seen in a long period of time (6-24 months). The leading effects are the endothelium-normalizing, anti-inflammatory and antioxidant ones. Statins increase the NO - synthetaseexpression, that leads to the nitrogen oxide (NO) synthesis augmentation in the endothelium of the blood vessels. In that way these medicines make the endothelium recover the vasodilation ability and the barrier function. Statins also stabilize the unstable atherosclerotic plaques. The anti-inflammatory effect takes place due to the inflammatory interleukins inhibition, decrease of the C-reactive protein level. The antioxidant effect of statins is associated with the free oxygen radicals synthesis inhibition. This leads to the decrease of the generation of the oxidated low-density lipoproteins and the slowdown of the cholesterol accumulation in macrophages. In addition, the inhibition of the inflammatory processes takes place, that also leads to the suppresses the atherogenesis. Nowadays, some other effects of statins are reported, these are the anti-ischemic action, influencing the whole myocardial tissue, the regression of the left ventricle hypertrophy, antithrombotic, antiarrhythmic action; immunosuppressive action, amyloidogenesis inhibition in patients with Alzheimer's disease; oncogenicity decrease; osteoporosis and bone fractures prevention; the decreasing of the cholesterol saturation of the bile, the cholesterol gallstones dissolution; the decrease of the homocysteine level in the treatment of hyperhomocysteineuria. Thus, the cascade of the therapeutic effects of statins consist in pleiotropic effects, favourable morphological and functional changes in arteries, the achievement of main goals of the secondary prophylaxis, the effect on the non-atherogeniccardial syndromes and extracardial pathology. Due to these effects, statins can be used in modern medicine in cardiology, rheumatology, gynaecology, traumatology, neurology, pulmonology, endocrinology.



**Conclusion.** Thus, nowadays the spectrum of the statin application in modern medicine is rather wide, due to the numerous therapeutic effects. There are many known features of statins, but it is believed they are not the only. Statin treatment is included in the complex therapy of the cardiovascular diseases, and the diseases, associated with the cardiovascular ones. Pleiotropic effects of statins also can be widely used in neurology, traumatology and rehabilitation, nephrology and in the treatment of certain hereditary diseases, however the individual approach and special attention to the side effects are necessary.



## PATHOMORPHOLOGY

**Adeyemi Ayodeji Alexander, Myroshnychenko M.S., Pliten O. N.**  
**MORPHOLOGICAL FEATURES OF THE PLACENTA IN WOMEN WITH  
BACTERIAL INFECTIOUS-INFLAMMATORY PROCESS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** In Ukraine there is an increase in the number of pregnant women with chronic infectious diseases of various organs and systems, which leads to a high incidence of complications during pregnancy and delivery. This also leads to the development of various pathological conditions in fetuses and newborns.

**Aim:** To identify morphological features of the placenta in women with bacterial infectious-inflammatory process.

**Materials and methods:** An experiment was conducted on female WAG rats. Prolonged infectious inflammatory process in the peritoneal cavity was induced using strains of *Escherichia coli* at a dose of  $1.5 \times 10^9$ , *Staphylococcus aureus* and *Klebsiella pneumoniae* at a dose of  $1.0 \times 10^9$ . The animals were subsequently fertilized and newborns were obtained. The control group (newborns from healthy mothers) and experimental group (newborns from infected mothers) were formed. Placentas were subjected to histological examination.

**Results:** In the placentas of animals of the experimental group, moderate involutive and degenerative changes, signs of circulatory disturbances and inflammatory infiltration were revealed. The signs of subacute peritonitis were observed in all animals of the experimental group, but the signs of placentitis were observed in 54 (72.0%) animals from 75.

**Conclusion:** It was established that the presence of bacterial infectious-inflammatory process in the mother does not always lead to inflammatory changes in the placenta, but moderate involutive and degenerative changes, signs of circulatory disturbances were observed in all animals of the experimental group.

**Glyanko M.<sup>1</sup>, Bezdniezhnykh N.<sup>2</sup>, Zhylchuk V.<sup>3</sup>, Kudryavets Yu.<sup>2</sup>**  
**MARKERS OF EPITHELIAL-MESENCHYMAL TRANSITION AND DRUG  
RESISTANCE IN TUMORS OF PATIENTS WITH COLORECTAL CANCER.**

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<sup>2</sup>RE. Kavetsky Institute of Experimental Pathology, Oncology and Radiobiology, NAS of Ukraine, Kyiv, Ukraine

<sup>3</sup>Rivne Regional Oncological Clinics, Rivne, Ukraine

**Introduction:** This time is not yet determined an effective biological marker panel of tumor cells of colorectal cancer (CRC), which would allow to predict the character of the disease after radical surgical intervention and choose the most effective schemes to neoadjuvant chemotherapy in patients with CRC. At the same time very important and relevant is the analysis not only the proteins that characterize the proliferative activity of cells or their potential sensitivity to certain anticancer drugs, but also the analysis of markers epithelial-mesenchymal transition (EMT), as this process plays a major role in acquiring the



cells not only metastatic properties, but also the characteristics of the cancer stem cells (CSC) with high drug resistance.

**Aim:** To analyze the expression of EMT-associated protein markers and certain drug resistance proteins for assessing tumor prognosis in patients with CRC.

**Material and methods:** To assess the effectiveness investigated markers was formed to oversee a group of patients, which included patients from January to May 2013 patients with CRC (n = 20), which in combination with surgical treatment had a course of radiotherapy and polychemotherapy courses, which included 5-fluorouracil in combination with cisplatin. Each of patient got 3 to 4 courses of adjuvant PCT mode. Radiation and chemotherapy were conducted no later than the 3 weeks after surgical treatment, by stages, patients were divided as follows: T3N0M0 - 10, T3N1M0 - 5, T4N0M0 - 3, T4N0-1M0 - 2 patients. The observation period was 5 - 7 months, during which 3 patients died - 2 through disease progression, one patient died of a heart attack. Each patient in the postoperative period, before the combined treatment was conducted Immunohistochemical analysis of tumor markers as: associated with drug resistance - topoisomerase II alpha, ERCC1 and EMT associated markers – transcription factor TWIST,  $\beta$ -catenin, E-cadherin. Analysis of the results was performed by the classical H-Score method.

**Results:** It was found that the expression of the TopoII-alpha is absent in 85% of cases and is not informative as to predicting tumor process or sensitivity of possible metastasis to specific drugs. The most informative marker was protein  $\beta$ -catenin (localized in the cytoplasm). With the high amount of  $\beta$ -catenin-positive cells in the tumor were not observed disease recurrence at 1 year after surgery. It was shown that in 37% of patients with E-cadherin expression also revealed disease-free period of 1-year observation. Only 10% of patients with expression of E-cadherin in association with the transcription factor TWIST manifested continuation disease with hepatic metastases. We found that in the absence of expression of all studied markers associated with EMT and with drug resistance disease recurrence is already observed 1 year after surgery. This fact may indicate a significant dedifferentiation of tumor cells to the level of CSC that requires further analysis of CD133 expression as a marker of CSC. Also, the data suggest that TWIST expression in tumors of patients may be a prerequisite for the selection their group at high risk of recurrence process, since this protein is a marker of aggressive phenotype. Was found that about 50% of patients have a ERCC1-positive tumors, indicating the ineffectiveness of platinum therapy for them. We also showed that almost all patients with ERCC1 expression in tumor observed and  $\beta$ -catenin expression, that is associated with the absence of disease recurrence at 1 year after surgery.

**Conclusions:** Studies in tumors of patients with CRC such markers as ERCC1, proteins associated with EMT and CSC have a high predictive value.

**Gubin M.V., Minakova S.A., Sevchenko Ya.A.**

**OUTSTANDING HOME SURGERY VN, SHAMOVAND FORENSIC-MEDICAL  
SIGNIFICANCE OF HIS CONTRIBUTION OF STUDY OF BLOOD TRANSFUSION.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Forensic Medicine, Medical Law)**

**Academic Advisor – Head of Department, Professor Olhovsky V.A.**



**Introduction.** At the present stage of development of medicine blood transfusion (blood transfusion) is a widespread manipulation in all countries of the world. Technique of its performance as well as goals and objectives of its using have been studied in depth and substantially devoid of issues. Thanks to this manipulation millions of lives were saved, including cases that took place during wars and major natural disasters. However, the first significant step in the study of blood transfusion was made only in the XVII century, when the English physician William Harvey discovered blood circulation in human body. As the same time there was the first attempt to transfusion blood. It aroused interest of scientists and physicians and they started working in this direction actively. In the Soviet Union, practice of blood transfusion only became widely used in the 20s of the last century. The first science-based blood transfusion was made on June 20, 1919 by the Soviet surgeon VN Shamova, who was the head of the Department of Surgery of Kharkov Medical Institute. Development of the issues related to the new trend in medical practice become one of the major themes in the work of this outstanding scientist.

**Results.** The study began from research which provided the opportunity to get standard determining serum for determining izoagglutinatsionnyh groups, without which it was impossible to continue the development of the blood transfusion service. Much time the scholar devoted to immunobiological aspects of the blood donation overflow developing the questions related to "universal donor". Special studies showed that blood of a corpse does not become infected for many hours and due to this fact it was proposed to cadaveric blood transfusions (hereinafter fibrinolizirovannuyu). Advocating the method of blood transfusion, V.N.Shamov spoke at the Congress of Surgeons (1928, 1930) reports on results of research and their application in practice. On the initiative of V.N.Shamova Ukrainian Institute of Hematology and Blood Transfusion was founded in Kharkiv (1930) and it became an essential contribution to the development of this work. During the Great Patriotic War V.N.Shamov was deputy chief surgeon of the Red Army specialized in blood transfusions. He paid a lot of effort and attention to the establishment of all parts of the service, including harvesting, storage and transportation of blood. It was established that after treatment in hospitals 72.3% of patients back into service. In many ways, it contributed to a well-organized blood transfusion service. Head of the Main Military Medical Directorate of the Red Army E.I.Smirnov wrote that "these results are unfading monument of selfless service of health workers to the homeland during the war, among which the most prominent place belongs to V.N.Shamov."

**Conclusion.** The case, which V.N.Shamov devoted his life continues to serve the community till the present day.

**Gubin N., Shmatko K.**

**DIAGNOSTIC VALUE OF MORPHOLOGICAL SIGNS IN FORENSIC MEDICAL EXAMINATION ON CAUSES OF DEATH FROM DROWNING**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Forensic Medicine and Medical Law**

**Introduction:** Recently the main direction in improvement of the forensic diagnostics of the death cause has become the research of maximum number of diagnostic features that are found in every kind of death. Drowning is one of the most common and difficult to diagnose types of mechanical asphyxia. According to the WHO, the frequency of drowning is 1.1-1.3 cases per 10,000 people, with mainly young people, which are sufficient grounds



for considering this type of death a real social issue. Diagnostics of the cause of death from drowning is one of the topical problems of forensic science and practice. However, the existence of a large number of diagnostic features and using of modern instruments and techniques are leaving it impossible to estimate the diagnostic value of each feature which leads to subjectivity of expert's conclusions about the cause of death.

**Aim:** To improve the diagnostics of the death cause from drowning by means of mathematical justification of expert's conclusion on the cause of death.

**Tasks:** To measure frequency of external and internal signs of death drowning; to determine the significance coefficient of each feature.

**Material and methods:** Morphological, macro- and microscopic, toxicological, statistical, mathematical, applying Bayes' postulate. Male and female corpses of different age groups which died from drowning.

**Results:** It was found during the study that the majority of deaths from drowning is composed by middle aged employable men (81,1%). The most frequently encountered features are: Paltauf's hemorrhages (98%), liquid blood (98%), liquid in pleural cavity (90%), lungs volume increase (89%), hyperemia of internal organs (89%), subepicardial hemorrhages (84%), water in abdominal cavity (77%), subpleural hemorrhages (76%). By means of statistical probabilities of drowning signs it is possible to establish the conclusions veracity about the cause of death, using suggested table of diagnostic coefficients. If the sum of statistical probability of diagnostic features is 95% or higher than the expert's conclusion on the death cause should be considered as reliable, if coefficients' sum is 75-95% then experts' conclusions are possible, when the same sum is below 75% - doubtful.

**Conclusion:** Using of the proposed method for determining the reliability of expert's conclusions will provide an opportunity to increase the objectivity and accuracy of forensic medical diagnosis of death due to drowning.

**Gubin N.V., Donska A.P.**

## **FORENSIC-MEDICAL EXAMINATION CASES OF SUDDEN CARDIAC DEATH DURING SPORTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Forensic Medicine, Medical Law**

**Introduction:** Cases of sudden cardiac death (SCD), which arise in sporting activities, are not very common in forensic-medical practice, but at the same time they are very difficult to diagnosis. This is explained by the absence of any medical records, circumstances of death are unknown and morphological changes of heart are nonspecific.

**Aim:** the improvement of diagnostic SCD in athletes.

**Materials and methods:** analysis of clinical cases, analysis of published sources.

**Results.** SCD occurs directly during physical activities or in the first hour after the indications of cardiovascular disorders arose. All cases of this sudden death are grouped into the such categories: 1) "shaking heart" syndrome, when a sudden and powerful blow to the chest causes cardiac arrhythmia; 2) the death of young athletes (under 30 years), which is associated with hereditary heart disease; 3) the death due to a heart attack, which is associated with acute myocardial ischemia. The last category is the main cause of death in athletes over 30 years, and it occurs often during intense dynamic loading. Analysis of the literature showed that the basic mechanisms of SCD associated with restructuring of the



ventricular myocardium and asystole, electromechanical dissociation cardiac structures, cardiogenic shock, acute left ventricular or right ventricular failure. In our opinion, the analysis of forensic-medical histological examination is crucial in the formulation of the final forensic-medical diagnosis. At the same time the expert pays attention to such symptoms as muscle fiber fragmentation, miotsitoliz, atherosclerosis of the arteries of the heart, hypertrophy of cardiomyocytes, diffuse cardiosclerosis, fields of accumulations of lymphocytes and plasma cells, narrowing of the arteries of the heart, artery walls plasmatic impregnation, degeneration of cardiomyocytes, varicose veins and venous plethora of the internal organs and etc. Same factors that contribute to the emergence of "concussion of the heart" in sporting activities, in our opinion are: 1) traumatization directly cardiac region (bruises, abrasions, wounds, broken ribs, etc.); 2) strong and sudden blow; 3) asthenic thorax; 4) shot coincidence with the phase of repolarization of the cardiac cycle. Survival after "concussion of the heart" is low (15%), even when resuscitation conducted promptly.

**Conclusion:** Thus, the improvement of diagnostic SCD in athletes is one of the urgent problems of modern forensic medicine. Currently, scientific and practical research to improve forensic-medical diagnosis of SCD in its various forms, using morphological, mathematical and statistical methods and laboratory studies are conducted at the Department of Forensic Medicine, Medical Law of the Kharkiv National Medical University.

**Kolyada O., Oluwayemi M.**

### **INFLUENCE OF TOTAL FRACTIONATING LOW DOSE X-RAY IRRADIATION ON THE INDEXES OF IMMUNOLOGICAL REACTIVITY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of pathologic physiology**

**Introduction.** Row of accidents on NPPs, such as Chernobyl, NPP on Three-mile Island in Pennsylvania, recent catastrophe on Fukushima and permanent threat of injury of "dirty" bombs by terrorist organizations resulted in that the level of anxiety in society in connection with the risk of radiation infection rose sharply. Presently public is disturbed by development of nuclear energy in peaceful and military industry, that served pre-condition to high scale researches of genetic consequences of ionizing irradiation. Greater part of the researches from USA, Great Britain and Germany were sent to the study of consequences of influence of low dose ionizing irradiation on inbred lines of mice for the estimation of genetic risk. In spite of the fact that these researches were not crowned by complete success, they became basis for further researches in area of genetics, transplantology, etc.

**Aim:** to study the mechanisms of forming of the radiation-induced changes of immunological reactivity.

**Materials and methods:** studies were undertaken on 42 male rats of population of Wistar with mass of 180-200g that were divided into the following groups: I - The radiation-exposed rats (36 individuals). II- group were intact rats (6 individuals) as a control group. The fractionating total irradiation of animals was carried out three times with the 24 hours interval. During research work, the dynamics of indexes of level of cytokines of TGF- $\beta$ , IL-10, IFN- $\gamma$  and IL-4, phagocytosis, activity of complement system and level of CIC was examined.

**Results.** The fractionating x-rayed irradiation results in the systemic height of level of TGF- $\beta$ , that, in a complex with strengthening of synthesis of IL-10, creates conditions for oppressing of effector mechanisms of Th1/Th2 - specific immune answer, showing up the



decreasing of levels of such serum cytokines as IFN- $\gamma$  and IL-4. Side by side with this, there is unstable deficit in the system of nonspecific immune defense.

**Conclusions.** Total low dose of fractionating x-rayed irradiation of rats results in an imbalance of serum pro- and anti-inflammatory cytokines (due to increase of level of TGF- $\beta$  and IL-10 and to the decrease of concentration of IFN- $\gamma$  and IL-4), to oppressing of phagocyte activity of peritoneal macrophages and neutrophils, increase of concentration of circulatory immune complexes and decrease of activity of complement in the serum of blood.

**Kovaltsova M., Sirenko V., Birukov M., Bereghnoy B.**

**THE MORPHOLOGY AND FUNCTION OF THE EXOCRINE PANCREAS OF PREGNANT RATS RESULTING FROM HYPOCALORIC DIET DURING PREGNANCY.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pathophysiology**

**Introduction.** An actual problem of medicine is the pathology of the pancreas. Pancreatic diseases are much more common than diagnosed. The effect of exogenous pathogenic factors on the development of pancreatic dysfunction is not sufficiently investigated.

**The aim** of the study was to investigate the morphological and functional characteristics of the pancreas rats of nutritional factors.

**Materials and methods.** The condition of the pancreas of ten rats on a model of nutritional experiment has been investigated. Before pregnancy and during pregnancy the female rats were on hypocaloric diet. The control group of animals was kept in standard vivarium conditions with normal balanced diet. Experimental processing included a set of morphological and biochemical methods. The experiments were carried out in compliance with the ethical principles of treating animals.

**Results.** The pancreas of pregnant rats treated with hypocaloric diet revealed morphological changes: reduced parenchymal area on 8,7%,  $p < 0,001$  (in 100% of rats) and acini on 20,1%,  $p < 0,001$  (in 100% of rats). Reduced edema (in 80% of rats  $\pm 12,6$ ,  $p < 0,001$ ), fibrosis (in 80% of rats  $\pm 12,6$ ,  $p < 0,001$ ) and lipomatosis stroma (in 80% of rats  $\pm 12,6$ ,  $p < 0,001$ ), its inflammatory infiltration (in 40% of rats  $\pm 15,5$ ), degenerative changes in the nuclei and cytoplasm (in 100% of rats), activation of apoptosis of exocrine pancreatic cells (in 100% of rats). Rats-mothers revealed hyperenzymemia (in 100% of rats) on the background of reducing  $\alpha_1$ -antitrypsin level (in 100% of rats).

**Conclusion.** Similar changes of the exocrine pancreas in animals create the preconditions for the development of its resistant exocrine dysfunction and forming the basis for its various organic pathology.

**Markiv A.I.**

**THE SOMATOMETRY OF NEWBORN BABIES AND ORGANOMETRY OF PLACENTA WITH HYPOKINESIA DURING PREGNANCY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pathological Anatomy**



**Intoduction.** The frequency of development pregnancy pathology and diseases of newborns are growing rapidly. The dominants lifestyle in industrially developed countries is a sedentary lifestyle. But the obstetric aspect of the problem of hypokinesia is not studied enough.

**Aim.** To learn the somatometric features of newborns and organometric features of placenta in pregnant women with hypokinesia.

**Methods and materials.** There are 16 cases of delivery in CEHP «Kharkiv city maternity hospital №6» from the obstetrician-gynecologist`sDoroganova A.V. permission who has been making the research about the obstetric aspect of hypokinesia. The pregnant women with the physiological process of pregnancy composed the control group (Cgr.) – 7 women. Women with the determined hypokinetic lifestyle composed the main group (hypokinesia - HKgr.) – 9 women. The mass, lenth, mass-lenth index (MLI) of newborns, absolute and relative mass of placenta, index of placenta capillarization were analyzed.

**Results.** The average body mass, the average lenth and MLI of newborns in Cgr. and HKgr. are the same, but in HKgr. – with bigger amplitude of values than in Cgr. There was found that only in 2 cases from the HKgr. MLI matches to the control variations, in 3 cases – exceeds, in 4 cases – reduces. That is in pregnant`shypokinesia newborns have increased probability for development obesity or deficiency of fatty tissue. The tendency to an elevation of absolute and relative mass of placenta in HKgr. was revealed, so it is necessary the bigger placenta for the fetus formation of the same mass in HKgr. than in Cgr. The index of capillarization of placenta, which is reflected the proliferation`s degree of capillaries in terminal villi and the mass of placenta, in HKgr. is 50% lower than in Cgr: index of capillarization of placenta in HKgr. is  $4.38 \pm 1.32$  conv. un., in Cgr. –  $9.41 \pm 1.42$  conv. un.,  $p < 0.05$ .

**Conclusion.** Hypokinetic lifestyle during pregnancy has an affect on somatometric indexes of newborns and leads to increase of childbirth`s probability with such symptoms as intrauterine obesity or intrauterine deficiency of fatty tissue. The proliferation`s degree of capillaries in terminal villi of placenta in the case of hypokinesia of pregnant is reduced, which is partly compensated by hypertrophy of placenta.

**Maryenko N.**

### **MORPOHOLOGICAL PECULARITIES OF THE CEREBELLUM IN ACUTE CEREBRAL CIRCULATORY DISORDERS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Pathological Anatomy**

**Introduction.** Acute disorders of cerebral circulation is one of the most important medical and social problems. In Ukraine, annually diagnosed more than 130 thousand cases of acute disorders of cerebral circulation, mortality rate which is 30%. The most common forms of cerebrovascular disease are cerebral thrombosis (40% of cases) and cerebral embolism (30%), followed by cerebral hemorrhage (20%).The cerebellum is one of the most important functional structures of the central nervous system, not only provides a static and coordination, but also participates in vital body functions. Therefore, the study of the pathology of the cerebellum is an important area of modern morphological and clinical studies.

**Aim** - to determine the features of morphological of the cerebellum in acute cerebral circulatory disorders.



**Materials and methods.** Morphological study was conducted on 14 cerebellum of people who died from CVA, including 7 - of ischemic brain infarcts, 7 - from hemorrhagic strokes. The control group consisted of 10 cerebellum of people who died from causes unrelated to the pathology of the central nervous system. Was used histological method of study - coloring hematoxylin-eosin, Nissl staining method with subsequent morphometry and statistical analysis of the results. We measured the following parameters: the number of Purkinje cells on a sheet of gray matter, length ganglion cortical layer, the density of neurons and the average distance between neurons.

**Results.** In the control group the average number of Purkinje cells on a folium of gray matter was 16.77 , the average length ganglion layer of the folium - 3940.1 m , the average density of neurons – 4.35 neurons per 1 mm and the average distance between neurons - 266.2 microns. In the group with cerebral infarction average number of Purkinje on a folium of gray matter was 10.56 , which is less than the control group at 37.03 % , the average density of neurons - 2.65 neurons per 1 mm, which is less than the control group by 39.08 %; the average distance between neurons was 485.48 mm, which is more than the control group at 82.37 % . In the group with cerebral hemorrhage average number of Purkinje cells on a folium of gray matter was 11.35 , which is less than the control group at 32.41 %; the average density of neurons - 2.98 neurons per 1 mm, which is less than the control group at 31 49%;the average distance between neurons was 370.56 mm, which is more than the control group at 39.20 % .

**Conclusion.** Thus, showed a reduction in the number of neurons and for increasing the distance between the neurons of the cerebellum in patients with ischemic and hemorrhagic stroke with extracerebellar localization.

**Molchanyuk D.A., Dubinin S.A.**

### **HIGH LEVEL AFFECT OF PERINATAL HYPOXIA TO MYOCARDIUM OF NEWBORN RATS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** Source of the most cardiovascular system pathology in elders starts from peri- and neonatal period. In recent years, much interest in state of cardiovascular pathologies are in newborns after undergoing through chronic and acute perinatal hypoxia. There were 21.4% chances of intrauterine hypoxia and asphyxia and around 11 newborns with the mass weight of 1000 gram were during child birth by the record of 2013 in Kharkov region. Fetal hypoxia leads to disruption of autonomic regulation of the coronary vessels, deterioration of energy metabolism with the sharp decrease of macroenergetic compounds formation in mitochondria of cardiomyocytes and cells of sinusoidal nodes.

**Aim:** Pro analyze affect of acute postnatal and chronic intrauterine hypoxia of heavy state on myocardium of newborn rats in an experiment.

**Materials and methods:** Experiment was done on Wistar rats with the formation of periodic hypobaric hypoxia conditions of high severity for pregnant females (little rats were in groups of chronic intrauterine hypoxia- gr. CIH) and disposable hypobaric hypoxia conditions for newborn rats (little rats were in groups of acute postnatal hypoxia – APH). Intact animals were in control group (gr. Cntrl). After taking little rats from experiment apex of heart was used to make micro-preparations and organize of histological and morphometric researches (microscope Axiostar plus-Zeiss).



**Results:** Experiment was done on Wistar rats with the formation of periodic hypobaric hypoxia conditions of high severity for pregnant females (little rats were in groups of chronic intrauterine hypoxia- gr. CIH) and disposable hypobaric hypoxia conditions for newborn rats (little rats were in groups of acute postnatal hypoxia – APH). Intact animals were in control group (gr. Cntrl). After taking little rats from experiment apex of heart was used to make micro-preparations and organize of histological and morphometric researches (microscope Axiostar plus-Zeiss). On micro-preparations control group we can mark the presence of fattened epicardium with a small amount of collagen fibers (especially surrounding arteriole and venule), in myocardium - cardiomyocytes with large number of densely spaced nuclei varying degrees of euchromness. On micro preparations of myocardium with CIH myocardium is much dense, than in control group, nuclei are densely placed, cardiomyocytes are quite chaotic, loose cytoplasm, dilated capillaries. Holds fuchsinophylicstromae - increases the number of fibroblasts and collagen. Noted the presence of cardiomyocytes with very light vacuolated cytoplasm. When Acute Postnatal Hypoxia nuclei are arranged even rarer than the Chronic Intrauterine Hypoxia, cytoplasm becomes more friable with voids. Morphometric research has found that average area of nuclei of cardiomyocytes in group Chronic Intrauterine Hypoxia and group Acute Postnatal Hypoxia is specifically less than in control group: gr.Cntrl-31,74 ±0,98 mkm<sup>2</sup>, gr.CIH – 23,71±0,89 mkm<sup>2</sup>, gr.APH– 22,45±0,82 mkm<sup>2</sup> (p<sub>k</sub>-aph<0,001, p<sub>k</sub>-cih<0,001). The form of nucleus also changes: gr. Cntrl most of the cardiomyocytes have elongated nuclei but in gr. APH and CIH those nuclei are less. Optical density of cardiomyocytes nuclei when stained according Eihnarsson in the both of major groups was lower than in gr. Cntrl: gr.Cntrl - 0,4±0,015, gr.CIH – 0,28±0,011, gr.APH – 0,25±0,013 (p<sub>k</sub>-aph<0,001, p<sub>k</sub>-cih<0,001).

**Conclusion:** The high degree of intrauterine hypoxia obstructed the inhibition of development and maturation of myocardium with the appearance of histological signs of an increased load on cardiomyocytes after birth. Severe acute postnatal hypoxia allegedly caused the death by apoptosis of cardiomyocytes and development of the increased load on the remaining cardiomyocytes.

**Palval Alina**

**CONTENTS MARKER CYTOKINES BY T-HELPER (TH1) AND (TH2)  
TYPES IN THE PERIPHERAL BLOOD IN ACUTE INFECTIOUS  
INFLAMMATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Physiological Pathology**

**The mentor – prof. S.V. Tatarko**

**Introduction:** The aim of this research is to find out the intensity of the immune component of the pathogenesis of an acute infectious inflammation - based content of IL-4, IL -12 and IFN -  $\gamma$  in serum of rats.

**Materials and methods:** Inflammation caused by the injection in the hip area of the daily culture of Staphylococcus aureus, strains Rosenbach (ATCC – 25923), which contained 2 billion microbes in 1 ml 0,9% NaCl. Since 6 pm and till the 28th day of the inflammation the cytokine content was determined in serum by ELISA using the congruent test systems - for IL -12 , IL -4 and IFN - $\gamma$ .

**Results:** The substance of IL-4 tended to decrease after 6 hours from the beginning of the inflammation process. On the 1st and 3rd day we observed a slight increase of IL-4



relatively to its initial level, later followed by a significant increase from the 7th to the 28th day and its superior level on the 28th day. Level of IL-12 had practically no differences from the control after 6 hours till 10th day from the beginning and had a tendency to increase during the period from 14th to 28th day with its superior level on the 28th day of the experiment. The concentration of IFN- $\gamma$  was also almost constant after 6 hours, and during the first day, but it has significantly increased on the 3rd day. Then it decreased on the 7th day, and slightly increased on 10th day being constant till the end of the experiment.

**Conclusion:** According to this, the increase of IL-4, IL-12 and IFN- $\gamma$  indicate the activation of Th-1 and Th-2 cells. Activated Th-2 cells, mediate the humoral immune responses. Activation of Th2- cells may reflect the formation of infectious immunity, as they are active during the end of inflammation. A significant increase of the IL-4 production is, probably, necessary for further production of Th2-cells and anti-inflammatory cytokines. In acute non-immune inflammation we observe moderate involvement of Th1-lymphocytes in the pathogenesis. They are the producers of anti-inflammatory cytokines contributing the achievement of an optimal severity of inflammation as a protective and adaptive response. The maximum response of Th1- cells in inflammation process, according to the production of IFN- $\gamma$ , is observed earlier than maximum of Th2- lymphocytes, which is observed on the 3d day. Production of IL-12 is just insignificantly increased, as there is no need for further formation of Th1- cells in acute inflammation. But the production of IFN- $\gamma$  is significantly increased, which is obviously needed to control the activity of Th1-lymphocytes.

**Tikhonova O.O.**

### **NEURO-ARTHRITIC DIATHESIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of pathophysiology**

**Introduction.** Diathesis is a special condition of the child's body, which is hereditary and characterized by the tendency to the emergence of certain diseases. Diathesis should not be regarded as a disease. More correct is to interpret diathesis as an anomaly of the constitution or adjustment disorders. Neuro-arthritis diathesis (NAD) is a genetically determined metabolism disturbance, first of all of uric acid and purine bases, manifested by increased excitability of central nervous system, spastic and allergic symptoms. NAD currently used to be linked to hereditary factors (defect metabolism of purine bases and uric acid), and to the effects of the external environment: overload of protein, primarily meat, food of the pregnant woman and child.

**Results.** Hyperuricemia in case of NAD is of great importance leading. Increasing the concentration of uric acid and urates in the blood and tissues has the primary character (mutations of the genes encoding metabolic enzymes - phosphoribosyltransferase and urooxidase), or it can develop later (for example, in increased collapse of purines and pyrimidines due to the hemolytic disease). Clinical manifestations of hyperuricemia are gout, nephrolithiasis, arthritis and neurological disorders. The impact of the increased concentration of urates and uric acid, which have caffeine-like effect on the central nervous system, leads to the development of the child excessive excitability. Stimulating effect on the central nervous system promotes earlier mental and emotional development. Children quickly learn, early start to read. However, the external well-being and good development of



the children are accompanied by emotional lability, sleep disorders.

**Conclusions.** Prognosis is the possibility of early formation of atherosclerosis in adults, essential hypertension, gout, metabolic arthritis, diabetes, urolithiasis, atopic bronchial asthma. Prevention of the development of mentioned diseases in the NAD children is a reasonable diet with restriction on the receipt of excess protein and restorative activities.

**Voteva W. E.**

**QUANTITATIVE ANALYSIS OF EXTRACELLULAR MATRIX  
COMPONENTS IN INTRACRANIAL MENINGIOMAS**

**Zaporozhye State Medical University**

**(Department of Pathological Anatomy and Forensic Medicine)**

**Zaporozhye, Ukraine**

**Introduction:** Extracellular matrix is an important structural component of every tumor. In addition to supporting and trophic function it affects the behavior of tumor cells, participating in the regulation of proliferation and differentiation of cells, but also affects the possibility of invasive growth and metastasis. Thus the intensity of stromal component of CNS tumors and particularly in meningiomas are not studied enough.

**Aim:** to execute the quantitative analysis of extracellular matrix components in meningiomas.

**Materials and methods:** surgically removed meningioma specimens were stained by the method of Masson trichrome. The quantitative assessment of fibrosis extent (% of fibrosis area to the entire field of vision) was performed, using digital image analysis system KS200 (Kontron Elektronik, Germany). The most widespread subtypes were studied, they included 5 cases of meningothelialmeningiomas (n=5), transitional(mixed)-(n=4), fibrous (fibroblastic)-(n=4), anaplastic (n=5, including 4 cases of recurrent tumors). In each case from 10 to 15 fields of vision were evaluated.

**Results:** meningothelia lmeningiomas represented well defined bundles of connective tissue, stained by Masson trichrome in dark-blueordark-lilac colour.They were located mainly adjacent to blood vessels and separated individual clusters of tumor cells. The total area of the connective tissue was  $17,7 \pm 5,26\%$ . Transitional meningiomas were characterized by mixed or transitional features of meningothelial and fibroblastic meningiomas. Concentric structures were often found in this subtype, they were made of cells with epithelioid shape, surrounded by elongated fibroblastic cells. The content of connective tissue, which was situated mainly around blood vessels was  $11,23 \pm 2,99\%$ . Fibroblastic meningiomas were distinguished by pronounced proliferation of collagen fibers, located between elongated tumor cells.The area occupied by connective tissue was  $31,51 \pm 7,6\%$ . In anaplastic meningioma connective tissue area was  $4,18 \pm 0,4\%$ , concerning the whole field of vision and had the form of thin strands of collagen fibers stained dark blue, which were located between the tumor cells with hyperchromic nuclei and numerous mitoses, occupying about 95% of the total area.

**Conclusions:** benign meningiomas are characterized by a large number of connective tissue, which is located mainly around blood vessels. Anaplastic meningiomas exhibit paucity of fibrosis, which also correlates with tumor recurrence after surgical removal.





## NEUROSCIENCES

**Adeem Farkad Yousif Alani, Kufterina N.S.**  
**TUMOR OF THE BRAIN IN THE CHILDREN**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Neurology**  
**Supervisor: prof. Grygorova I.A.**

**Introduction:** Most current research on human brain tumors is focused on the molecular and cellular analysis of the bulk tumor mass. However, there is overwhelming evidence in some malignancies that the tumor clone is heterogeneous with respect to proliferation and differentiation. In human leukemia, the tumor clone is organized as a hierarchy that originates from rare leukemic stem cells that possess extensive proliferative and self-renewal potential, and are responsible for maintaining the tumor clone. We report here the identification and purification of a cancer stem cell from human brain tumors of different phenotypes that possesses a marked capacity for proliferation, self-renewal, and differentiation. The increased self-renewal capacity of the brain tumor stem cell (BTSC) was highest from the most aggressive clinical samples of medulloblastoma compared with low-grade gliomas. The BTSC was exclusively isolated with the cell fraction expressing the neural stem cell surface marker CD133. These CD133+ cells could differentiate in culture into tumor cells that phenotypically resembled the tumor from the patient. The identification of a BTSC provides a powerful tool to investigate the tumorigenic process in the central nervous system and to develop therapies targeted to the BTSC.

**Material and methods:** The segmentation of brain tumors in magnetic resonance images (MRI) is a challenging and difficult task because of the variety of their possible shapes, locations, image intensities. In this Review paper, it is intended to summarize and compare the methods of automatic detection of brain tumor through Magnetic Resonance Image (MRI) used in different stages of Computer Aided Detection System (CAD). Brain Image classification techniques are studied. Existing methods are classically divided into region based and contour based methods. These are usually dedicated to full enhanced tumors or specific types of tumors. The amount of resources required to describe large set of data is simplified and selected in for tissue segmentation.

**Results:** Experience has shown EEG to be somewhat reliable in localizing lesions involving superficial portions of the cerebral hemispheres, though it is of limited value in deep-seated lesions, especially posterior fossa tumors. The role of EEG in detecting focal cerebral disturbances has undergone a significant change since the development of CT scan and MRI. Today EEG is used primarily to complement these studies by evaluating functional changes in the patient's condition; it demonstrates aspects of brain physiology that are not reflected in structural neuroimaging. Functional neuroimaging techniques, such as positron emission tomography (PET), single-photon emission computed tomography (SPECT), and functional MRI (fMRI), can exhibit physiologic changes but not with the temporal resolution of EEG. Furthermore, EEG provides the only continuous measure of cerebral function over time.

**Conclusion:** the brain tumor is located in a place that makes it accessible for an operation. In some cases, tumors are small and easy to separate from surrounding brain



tissue, which makes complete surgical removal possible. In other cases, tumors can't be separated from surrounding tissue or they're located near sensitive areas in your brain, making surgery risky. In these situations your doctor may try to remove as much of the tumor as is safe. Even removing a portion of the brain tumor may help reduce your signs and symptoms. In some cases only a small biopsy is taken to confirm the diagnosis. Surgery to remove a brain tumor carries risks, such as infection and bleeding. Other risks may depend on the part of your brain where your tumor is located.

**Adeyemi Ayodeji Alexander, Reznichenko E.K.**  
**VON-HIPPEL LINDAU'S DISEASE: A CASE STUDY**  
**Kharkiv national medical university, Kharkiv, Ukraine**

*This article is dedicated to the loving memory of my teacher Oleg Mihailovich Korolenko.*

**Introduction:** Von Hippel-Lindau disease is an autosomal dominant neoplasia syndrome that results from a germline mutation in the VHL gene. Germline mutations in the VHL gene lead to the development of several benign or malignant tumours, and cysts in many organ systems. Affected individuals might develop CNS lesions including cerebellar, spinal cord, brainstem, nerve root, and supratentorial haemangioblastomas, as well as retinal haemangioblastomas and endolymphatic sac tumours. Visceral features of the disorder include renal cysts and carcinomas, pheochromocytomas, pancreatic cysts and neuroendocrine tumours, as well as epididymal and broad ligament cystadenomas.

**Aim:** To properly diagnose and prevent complications that may occur in patients.

**Materials and methods:** Computer tomography scan of the head, Anamnestic data, Clinical objective examination data.

**Results:** Patient X, male, 50 years old presented to the neurological department of KNMU with painless decrease of vision in the right eye. The intraocular pressure was within normal limits. The results of bilateral biomicroscopic examination of anterior segments were unremarkable. Right eye fundus examination revealed lesions in the superior retina with dilated vessels and tortuous draining vein which is a characteristic for Retinal hemangioblastoma. Systemic studies, including magnetic resonance imaging of the brain revealed bilateral cerebellar tumors. His family history was without any hereditary diseases. On the basis of clinical and investigational findings, he was diagnosed with Von-Hippel Lindau's disease. Diagnosis of von Hippel-Lindau disease is often based on clinical criteria. Patients with a family history, and a CNS haemangioblastoma (including retinal haemangioblastomas), pheochromocytoma, or clear cell renal carcinoma are diagnosed with the disease. Those with no relevant family history must have two or more CNS haemangioblastomas, or one CNS haemangioblastoma and a visceral tumour (with the exception of epididymal and renal cysts, which are frequent in the general population) to meet the diagnostic criteria.

**Conclusion:** Specific correlations of genotype and phenotype have emerged in affected families. Several familial phenotypes of von Hippel-Lindau disease are now recognised, providing useful information to screen and counsel affected individuals. Type 1 families have a greatly reduced risk of pheochromocytomas, but can develop all the other tumour types generally associated with the disease. Type 2 families have pheochromocytomas, but have either a low-risk (type 2A) or high-risk (type 2B) for renal cell



carcinomas. Type 2C families have pheochromocytomas only, with no other neoplastic findings of VHL. The new insights into the underlying mechanisms of tumour formation, greater knowledge of the natural history of the various lesions associated with von Hippel-Lindau disease, and more precise diagnostic studies (laboratory and imaging) should lead to an improved quality of life and extend the life expectancy of affected individuals. The diverse multisystem effects of this disease need careful, selective, and coordinated planning to determine the treatment of individual lesions that will provide the best long-term management of these patients.

**Anoop Vasu, Kufferina N.S.**

**CLINICAL-DIAGNOSTICAL FEATURES OF “CADASIL” SYNDROME**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Supervisor – prof. Grygorova I.A.**

**Introduction:** CADASIL syndrome is the most common form of hereditary stroke disorders and is thought to be caused by mutation of Notch-3 gene of chromosome 19. This condition affects the blood flow in small blood vessels, particularly the cerebral vessels in brain. The muscle cells surrounding these blood vessels (vascular smooth muscle cells) become abnormal and gradually die. In the brain, the resulting blood vessel damage can cause migraines, often with visual sensations or auras or recurrent seizures (epilepsy). The damaged blood vessels reduce the blood flow to brain and cause areas of infarcts in the brain which can lead to stroke

**Aim:** To study the epidemiological, clinical characteristics and treatment of CADASIL syndrome

**Materials and Methods:** 5 patients with diagnosis of CADASIL syndrome was studied and examined to study the characteristics of disease. On examination were used clinic-neurological, instrumental and statistical methods of investigations

**Results:** On account of my studies, CADASIL syndrome on 30% may start with an attack of migraine, with aura or sub cortical transient ischemic attacks or strokes or mood disorders between 35 to 55 years of age. The disease progresses to sub cortical dementia associated with pseudo bulbar palsy and urinary incontinence. 85% of the symptomatic individuals develop transient ischemic attacks or strokes. A classical lacunar syndrome occurs in at least two-thirds of the affected individuals. According to the literature there is no specific treatment for CADASIL syndrome. However, anti-platelet agents such as aspirin, dipyridamole, or clopidogrel might slow down the disease and help prevent strokes. Homocysteine levels are elevated in CADASIL and treatment with folic acid is reasonable. Anti-platelet therapy appears justifiable, whereas anticoagulation may be inadvisable given the propensity for microhemorrhages, and thus warfarin should be avoided. Administering tPA (like actilyse) following onset of stroke is not advised for CADASIL patients, due to increased risk of microhemorrhages

**Conclusion:** Most of the affected families have been identified in Western Europe. Several families with CADASIL have also been reported from Japan and other Asian countries. CADASIL in most cases is characterized by the clinical tetrad of dementia, psychiatric disturbances, migraine, and recurrent strokes. As there is no specific treatment, it is necessary to find a specific treatment for CADASIL syndrome as it is one of the most common form of hereditary stroke disorders seen throughout the world.



**Baluta B. Y.**

**PARANEOPLASTIC MYOSITES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Neurology department**

**Introduction.** The Idiopathic Inflammatory Myopathies (IIM) – the group of inflammatory diseases of striated muscles, the main which clinical manifestations is muscular weakness. It includes polymyositis/dermatomyositis (PM/DM); juvenile DM; myositis, associating with diseases of connecting tissue; paraneoplastic (PNP) myositis – and other nosological forms. It is considered that the frequency of identification of malignant new growths at PM/DM is about 12 times higher, than in population. Ratio of men and women is 1:1. According to literature data, it is established that the frequency of identification of a tumor at DM makes 9,4%, while at PM – 4,4%. Probability of identification of a tumor at PM/DM directly increases with age. After 50 years it reaches 71% at women and 24% at men. PNP-myositis can manifestate before emergence of local symptoms of a tumor, at the same time or after their detection. This problem is actual, in our opinion, because this pathology meets at many patients with malignant new growths, but today, many oncologists aren't inform concerning this problem and quite often neglect it. This in turn leads to deterioration of a condition and disablement, and without that, heavy patients.

**Aim.** Our aim is to analyze literature and clinical data concerning this disorder, and make a conclusion.

**Results.** PNP-myosite is included into the structure of paraneoplastic neurologic syndrome (PNS) which include, besides PNP-myositis, extensive group of neurologic violations. In the base of development of paraneoplastic damage of nervous system are immunological processes, which are provoked by existence, at tumor cells and nervous system cells, a cross reacting anti-genes. Also significant role is played by the following pathogenetic mechanisms: production by tumor biologically active substances causing toxic influence, violation of exchange processes, and also consumption by a tumor of the substances necessary for normal functioning of healthy cages. Clinical and laboratorial features of PNP-myosite. One of the most specific features of clinic of PNP-myosite is expressed and heavy current of vasculitis. Vasculitis, in turn, causes polymorphism of a skin. Also for PNP-myosite it is characteristic the development of the so-called bulbar muscular syndrome originate not at the expense of damage of cranial nerves, but directly damages of muscles. Expressiveness of muscular deficiency at PNP-myosites and other IIM is almost identical. Muscular pain at PNP-myositis has permanent character, gives in to NSAID treatment bad, and has increasing character in time that demands from doctors of various specialties of oncological suspicion. At a biochemical blood test of patients with PNP-myositis, in comparison with patients with other IIM, the maintenance of CPK, LDH, AST and ALT is lower, however ESR is, as a rule, higher. Some researchers pronounce the opinion relational a role of antibodies to a protein 155/140 as a specific marker of PNP-myosites, because it wasn't detected at patients with other IIM.

**Conclusion.** Summing up the aforesaid, it is possible to say that the main differences of PNP-myosites from other IIM consist, generally in laboratory indicators. Besides, data of some researches allow to discuss a role of antibodies to a protein-155/140 as specific



markers of a tumoral myositis, that allows to carry out screening diagnostics. However today messages concerning this problem, aren't that's why this question needs to be additional studied.

**Berezhna A.V., Reznichenko O. K., Pavlova O.S.**  
**DONEPEZIL HYDROCHLORIDE IN THE TREATMENT OF SENILE  
ALZHEIMER'S DISEASE, EARLY STAGE**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Neurology**

**Introduction.** Alzheimer's disease is the most common of all types of dementia. According to the literature in Europe Alzheimer's disease is up to 70% of cases of dementia. In the last decade, this pathology is recognized as one of the major health and social problems of modern society. Projected number of patients will increase. Until now, no single approach to treatment of the disease.

**Aim.** Examine the effectiveness of donepezil hydrochloride ("Alzepil") in the treatment of early stage Alzheimer's disease.

**Materials and methods.** We observed five patients aged 75 to 82 years, two women and three men. Memory loss, impaired concentration, mild depression was observed in all patients. Based on clinical and paraclinical methods was diagnosed Senile Alzheimer's disease early stage. In the combined therapy was appointed donepezil hydrochloride ("Alzepil") at a dose of 5 mg at bedtime for 3 months.

**Results.** Improvement in memory and overall health was observed in all patients after treatment. The patients became less irritable. One patient (male, 78 years old) noted the presence of his drug side effects: fatigue, mild dizziness and insomnia.

**Conclusions:** Donepezil hydrochloride ("Alzepil") is an effective drug for the symptomatic therapy of Alzheimer's disease at early stage. However, in patients of this age will require a comprehensive therapy.

**Berezhnoj B.Y.**  
**RESEARCH SUPERVISOR - PHD OF MEDICAL SCIENCES, DOCENT SALO  
VLADIMIR IVANOVICH NEUROLOGICAL SYMPTOMS AND SYNDROMES IN  
EPILEPTIC PATIENTS AFTER NEUROSURGICAL TREATMENT**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Neurology**

**Introduction:** Among the methods of correction incurable epilepsies significant efficiency has sagittal dissection of corpus callosum in combination with cutting the front, the hippocampal commissure and intertubercular seam. Although in practice most of these patients does not experience difficulties in social adaptation, they are characterized by some of the "dissociative" phenomena that can affect the professional and daily activities of patients.

**Aim:** To determine the leading symptoms and syndromes, most typical for patients with operational commissurotomy, typical topical symptoms.

**Materials and methods:** Data of foreign and domestic clinical studies conducted among patients with acquired defects of corpus callosum.

**Results:** The most marked symptoms typical for lesions of the posterior third of corpus callosum. First syndrome is a syndrome referred to as anomie. It manifests itself in



violations of naming stimuli entering the right hemisphere of the brain. If the patient touches objects with his left hand or receives only visual stimuli into the left semifield of view, the information goes to the parietal or the occipital region of the right cerebral hemisphere. After commissurotomy such a transfer does not occur and the perceived objects cannot be named. The difference of anomie from violations of nomination in aphasia is that when you receive the same information into the left hemisphere (right hand perception of the object, the presentation of stimuli in the right semifield of view), it can be easily named. It is important to note that at the basis of anomie do not lie disorders of gnosis and, as an object identifiable by touch may be selected either by using touch or visually from the group of other objects. The described phenomenon concerns not only naming objects but also letters. The second syndrome of corpus callosum lesion – syndrome of "diskopii-dysgraphii". It manifests itself in the fact that the patient becomes completely unable to write with his left hand and to draw (make rubbings) with his right hand. The diagnostic technique that allows to differentiate these symptoms from ordinary writing disorders and visuoconstructional activity is changing hands when performing tasks. Patients with commissurotomy are able to write with the right hand and to draw with the left hand. Damage of anterior third of the corpus callosum does not lead to visible damage of mental functions. Commissurotomy in medium sections of corpus callosum leads to, detectable in normal neuropsychological studies, disorders of transfer of skin-kinesthetic information from one hand to the other when performing tests for praxis-poses, tests for transfer of the touch point to the other arm, tests for the selection of object by its form, presented to one hand with the other hand. Under the dichotic presentation of verbal stimuli the damage of middle sections of corpus callosum leads to a marked phenomenon of ignoring words presented to the left ear, i.e. coming into the right hemisphere of the brain.

**Conclusions:** The described symptoms of the disorder of mental functions in lesions of corpus callosum and techniques that allow to detect them provide a basis for addressing issues of topical diagnosis not only in terms of dysfunction of the hemispheric ties in general, but also in relation to the localization of the pathological process in their rear, middle or anterior regions.

**Besh A.I.**

### **BENEFITS OF MISS IN CHRONIC BACK PAIN PATIENTS WITH SEQUESTERED HERNIA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Neurosurgery**

**Aim:** To determine the benefits of minimally invasive spine surgery (MISS) in chronic back pain patients with sequestered hernia.

**Materials and methods:** In the clinic of Neurosurgery of KNMU since 2008 till 2013 were conducted a surgical treatment of 137 patients with herniated discs of the lumbar spine. All patients admitted to the hospital with severe drug-resistant radicular pain. In 115 (83, 9%) patients experienced a movement disorders with the restriction act of walking. In 34 (24, 8%) of cases were observed sphincter disorders. Sequestered herniated discs of the lumbosacral spine were separated by levels: L3-4 - 12 (8,9%), L4-5 - 25 (18,2%), L5-S1 - 92 (67.1%), polysegmental - 8 (5.8%). By the size of sequesters were distinguished: 6-9mm - 29 (21.3%), 9-12mm - 92 (67.1%), 12-15mm - 16 (11.6%). In 18 (13.1%) cases were



noted intra channel migration of sequesters, of which 11 (8%) cases are cranial and 7 (5.1%) - caudal. Operated patients (137 patients) were divided into 2 groups: Group 1: 50 patients, which were operated by using topographic anatomical variants of sequestered hernias: a) For foraminal and posterior-lateral hernias were used interlaminar access with arctomy and partial facetectomy, foraminotomy, minimally invasive microsurgical decompression of neurovascular structures in conjunction with the assisting video endoscopy. b) For median and paramedian hernias: posterior access with significant interlaminar resection of adjacent edges of the cranial and caudal arches till their middle part; and in the case of large seizures (12-15 mm)- hemilaminectomy with partial facetectomy and microsurgical decompression of neurovascular structures in conjunction with the assisting video endoscopy. Group 2 : 87 patients who underwent discectomy without using microsurgery and the assisting video endoscopy. Operative access - hemilaminectomy, laminectomy.

**Results:** The results were evaluated using a J.MacNab scale. 1st group showed: good results - 45 (89%), satisfactory - 3 (6%), unsatisfactory cases - 2 (5%); In group 2: good results - 64 (73.5%), satisfactory - 20 (22.9%), unsatisfactory cases - 3 (3.6%). The average hospital stay after surgery in group 1 - ( $5,2 \pm 1,6$ ), group 2 - ( $8,3 \pm 3,2$ ). The following complications were observed: 1st group - extra channel wound complications (liquorrhea, superficial wound infection) - 2 (4%), relapse of the pain syndrome - 2 (4%); Group 2 - extra channel wound complications (liquorrhea, superficial wound infection) - 7 (8%), intra channel - epidural fibrosis - 9 (10.3%), relapse of the pain syndrome - 6 (6.8%).

**Conclusions:** The got comparative results talk about efficiency of the advanced approach to surgical treatment of sequestered hernia(MISS) in chronic back pain patients.

**Fedorchenko S.V.**

## **FEATURES OF THE INTERNAL PICTURE OF DISEASE AT PATIENTS WITH BENIGN POSITIONAL DIZZINESS.**

**Kharkiv Medical Academy of Postgraduate Education**

**Department of neurology and neurosurgery**

**Introduction.** Vertigo problem because of the high prevalence to date is one of the most urgent problems of modern medicine: about 50 % of all neurological patients complain of dizziness. In addition, the presence of comorbid somatic disorders makes a certain pathomorphosis in the picture of clinical manifestations, making difficult early diagnostics and treatment activities.

**Aim.** Determination of the internal picture of the disease at patients with benign positional vertigo.

**Material and methods.** The subject of this study were 18 patients with one of the clinical forms of vertigo - benign positional vertigo. The indications for hospitalization were various neurological and somatic profile complaints of which was a key complaint - dizziness. The study used a clinical diagnostic test method and Dix - Hallpike.

**Results.** The study revealed that the majority of patients (83%) had type nozofobny relationship to the disease, the essence of which is disproportionately assessing the severity of his illness, causing negative emotions and polymorphism of somatic and vegetative symptoms at patients. Last worses severity of the condition, forming in this "vicious circle".

**Conclusions.** Thus, the inner picture of patients with the clinical form of benign positional vertigo is characterized by a subjective factor in relation to their disease and differentiated approach defines medical rehabilitative activities with emphasis use



psychoeducational programs and psychotherapeutic influence in the range of rational psychotherapy.

**Hmain S.**

**THE EFFECTIVENESS OF ART THERAPY'S TECHNIQUE "MAKING STORIES IN PICTURES" IN COMPLEX TREATMENT OF PATIENTS WITH NEUROTIC DEPRESSION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Despite significant progress in the development of pharmacotherapy of depressive disorders, difficulty in achieving rapid reduction in depressive symptoms and stable remission in patients with neurotic depression necessitated the search for new approaches to the treatment of this pathology. One way to improve the efficiency of complex therapy of depressive disorder is the use of art therapy techniques.

**The aim** of our study was to evaluate the effectiveness of the method "Making stories in pictures" (MSP) in the treatment of patients with neurotic depression.

**Material and methods.** In this study were used clinical-psychopathological and psychodiagnostic methods. MSP technique was carried out in individual and group forms of psychotherapy, by sessions of 60 minutes one day per week for one month. The study involved 60 patients of both sexes aged 18 - 45 years, divided into main group and comparison group. The technique MSP in treatment with antidepressants SSRI was effective by accelerating regression of depressive symptoms. 70% of patients had faith in themselves; 75% - showed improvement in mood state between sessions; 77% - had increasing of self-estimation; 80% of patients improved their adaptive abilities. This technique also allows patients to learn new coping strategies, helping to solve their problems on a structured, logical framework, which makes prevention of recurrent relapses in the future.

**Khomenko M.A, Riznychenko O.K**

**CLINICAL CASE: THE EFFECTIVENESS OF REPEATED APPLICATIONS OF BOTULINUM TOXIN IN FOCAL DYSTONIA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Neurology**

**Introduction.** Focal dystonia - a neurological syndrome characterized by prolonged spontaneous muscle contractions in the same anatomical area of the body. Pathology often leads to sustained abnormal postures in the involved areas of the body. These postures can become a cause of functional deficits in patients, which worsens their social adaptation, leads to early access to disability.

**Aim.** Study of the effectiveness of repeated applications of botulinum toxin in the treatment of focal dystonia of the neck muscles - spasmodic torticollis.

**Materials and methods.** The 37 years old patient was examined with a diagnosis - spasmodic torticollis. The drug "Dysport" was used in the treatment three times, at intervals of 1 per year. Drug was injected ipsilateral to the right splenius capitis muscle at a dose of 350 units and to the right sternocleidomastoideus muscle at a dose of 150 units. The total dose - 500 units per 1 procedure. The drug was diluted in 1 ml of 0.9% sodium chloride solution. Effects of the toxin are full and more resistant while: maximum muscle



contraction, sufficient intracellular concentration of calcium and potassium ions, exposure of low temperatures. Therefore, calcium and potassium with vitamin D were appointed to the patient for 2 weeks before injection, also before and after injection - cooling injectable area and intensive tension for injectable muscles for 15-30 minutes after the procedure were appointed.

**Results.** Clinical muscle relaxant effect after injection was noted in 7-14 days. Duration of the effect was different in each year and decreased with each successive injection. The therapeutic effect lasted 1st year - 8 months, 2nd year - 6 months, 3rd year - 4 months.

**Conclusions.** With each successive use of botulinum toxin duration of its therapeutic effect is decreasing. This occurs apparently due to the fact that the presence of protein molecules is the factor contributing to the formation of neutralizing antibodies to all hemagglutinin-neurotoxin complex which leads to patients secondary insensitivity to repeated injections of the drug.

**Korovina L.D.**

### **THE PSYHOREHABILITATION AND TREATMENT OF PATIENTS WITH PARANOID SCHIZOPHRENIA.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Schizophrenia has been and stays a serious illness. This caused not only by with the presence of positive and negative symptoms, but also with serious social consequences for patients. History of the development of techniques of psychotherapy and psychorehabilitation of schizophrenia has a long period.

**Material and methods.** In our study, we used an integrated approach: antipsychotictherapy atypical drugs, combined with psychorehabilitation program for a group of patients with paranoid schizophrenia. Psychorehabilitation program included differentiated psychoeducation with elements of cognitive-behavioral therapy.

**Results.** The features of compliance factors and satisfaction of therapy were revealed and modules of psychoeducational programs were worked out on the basis of explored patterns. These programs were components of complex psychorehabilitation program directed to improvement of quality of patient's life and increase of compliance in patients with paranoid schizophrenia. At the final stage of work, through re-examination of the study group by clinical-psychopathological method and psychometric techniques effectiveness of the psychorehabilitation program were confirmed.

**Conclusion.** Revealed significant increase in quality of life, socialization and complacence contingent of research.

**Kryshtal O.O., Kryshtal V.E.**

### **THE PSYCHO-SOCIAL REHABILITATION OF PATIENTS WITH SCHIZOPHRENIA.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Aim:** evaluation of the effectiveness of psycho educational programs in comprehensive rehabilitation of patients with schizophrenia

**Material and methods.** A comprehensive survey was carried out of 142 female patients at the age 18 – 35, which have diagnosis the schizophrenia in period of stabilization state.



**Results.** The integrative model of psychoeducational work was proposed, which includes application of various information modules, techniques of cognitive-behavioral therapy, training effects, problem-oriented discussions, and family psychotherapy. The psychoeducation was determined to be superior over conventional complex treatment intended for reduction of negative symptoms, productive symptoms and general psychopathological symptoms of patients with schizophrenia. It is supported by dynamic analysis of the clinical disturbances and psychopathological ones on the PANSS. The improvement of psychosocial functioning and quality of life of the patients with schizophrenia who participated in the psychoeducational activities was determined.

**Conclusions.** It is proved that psychoeducation not only increases the amount of knowledge intensifies confidence in the fight against the disease, but solves the problem of social reintegration of the patient.

**Kufterina N.S.**

### **CLINICAL DIAGNOSTIC ASPECTS OF THE TRAUMATIC BRAIN INJURY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Traumatic brain injury (TBI) and its consequences has great medical and social importance, due to its significant role in the structure of morbidity, mortality and disability population. Particular issue is devoted to the extraordinary number of scientific papers, but this issue remains a number of unresolved aspects. Neurological manifestations of the individual effects of combined TBI do not lose their position on the frequency and prevalence among other diseases. Despite the diversity of current research and literature data, search pathogenic mechanisms that lead to neuropsychological impairment in this disease has not yet led to any definitive conclusions.

**Aim.** Diagnostic features studying in patients after traumatic brain injury.

**Materials and methods.** We observed 160 patients in the age from 18 to 40 years, after traumatic brain injury (TBI), which were treated at the Kharkiv emergency unit hospital named by prof. A.I. Meschaninov. Also there were inspected 40 almost healthy people. For all patients were used clinical-neurological, neuro-physiological (EEG, EP), neuropsychological (MoCA, 10 words memorization, Shulte's tables) investigations, MRT of the brain, immunofermental analysis for BDNF and S100 studying. All data were statistically processed.

**Results.** In the acute period patients complained on headache (91,6%), vertigo (35,4%), general weakness (83,3%), worsening in memory (87,4%), in attention (75,0%); reduction in sight (77,1%), rumor (64,6%), convulsive assaults (37,5%), apathy and sleepiness (22,9%). Accordantly to the neuropsychological investigation, were founded reduces of number of words for 10 words test memorizing (in comparison with control group), the lower total volume of reproduction ( $p < 0,05$ ), increasing time for working by Shulte's tables, more amount mistakes. Studying BDNF in the blood serum has shown, that in the acute period, the changes are not such significant, as in distant. But not the same fact was observed by studying S100. It was shown, that S100 in the acute period of combined TBI increases more than twice in comparison with the control group. All changes correlated with complaints and neurological symptoms.



**Conclusions:** Even mild traumatic brain injury occurs the disturbance of neuropsychological indices and its' biochemical markers. This changes is necessary to take into account providing the treatment tactics in combined TBI patients.

**Melamud E.**

### **ANXIETY AS A FACTOR OF SCHOOL-LEAVER'S DISADAPTATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** The load increases in the high school. The most of the pupils want to enter the high educational establishments after school, that's why they have to pass exams and independent tests successfully. However, it cannot please everyone. Some of the pupils are unready in this situation. It depends of personal qualities of the school-leavers. So when we study pupil's personality characteristics, we can find children who has a propensity to develop anxiety and depressive disorders influenced by the increased load.

**Aim.** Study and analysis of personality characteristics of high school pupils; identification of children who are prone to the development of anxiety and depressive disorders; elaboration of preventive measures and other corrective training.

**Material and methods.** The Sixteen Personality Factor Questionnaire by Raymond B. Cattell, Eysenck Personality Inventor, Littmann E., Schmieschek H.G. Personality Inventor.

**Results.** We have examined 21 students grade 11 high school number 25. According to the Cattell's test, in 6 children (28.6%) personality is characterized by increased anxiety, emotional lability, low stress tolerance, a tendency to depressive reactions. All this children have an introversion (3-5 points ) and elevated levels of neuroticism (more than 14 points) by Eysenck Personality Inventor,. By Littmann E., Schmieschek H.G. Personality Inventor 3 out of 6 children (50 %) have an accentuation of personality in the alarm type, which is characterized by a high level of constitutional anxiety. One pupil (16.6%) have a dysthymic type which is characterized by a decrease in mood. 2 children (33.3 %) had cyclothymic type of accentuation, with the dominance of mood swings: good mood is short, poor long-term.

**Conclusions.** According to the tests, 28.6% of pupils likely to develop anxiety and depressive disorders as like reaction in response to increased load. That's why we need to use some of psycho techniques to prevent and leveling possible deviations in children.

**Mykhaylov V., Mykhailova I.**

### **PSYCHO-EMOTIONAL DISTURBANCES IN MYOCARDIAL INFARCTION PATIENTS.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** The majority of patients after myocardial infarction (MI) have various psycho-emotional and cognitive impairments. It complicates the course of disease, rehabilitation processes, reduce the quality of life for patients.

**The aim** of the present study was to estimate the emotional disorders in patients with MI.

**Material and methods:** The study was performed including 60 patients ( $56,8 \pm 9,8$  years old) with MI. Methods of examination were: clinical, psycho-diagnostic (the MMSE, memory test, Spylberger scale of the anxiety, Gamyilton scale of the depression, quality of life), statistical methods. The investigation was held at 3 stages: 1stage – 28 days after MI (acute period), 2 stage – after 3-6 month, 3 stage - after 12 month (recovery period).



**Results:** At patients with myocardial infarction in acute period the painful syndrome was the main one, leads to severe psycho-emotional disturbances. At the background of preservation of cognitive function phobic, anxiety and depressive symptoms were prevailed, the severity of which depends on the severity of pain. Subsequently, the primary psycho-emotional component disappeared, anxiety-depressive disorders, hypo- and anozognostical type of perception of self condition were formed.

**Conclusions:** We developed system of psychotherapeutical correction of emotional disorders for myocardial infarction patients. This system includes personally - oriented, rational, and autogenic-training therapy.

**Nekrasova N.A., Bortnovskaya V.S.**

**THE CONTENT OF SOME FACTORS OF TISSUE HYPOXIA IN THE  
BLOOD SERUM OF YOUNG PATIENTS WITH SPONDYLOGENIC  
VERTEBROBASILAR INSUFFICIENCY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Neurology department**

**Scientific supervisor: prof. Grygorova I.A.**

**Introduction.** Vertebrobasilar insufficiency is one of the most widespread forms of cerebrovascular pathology. Spondylogenic mechanism of this pathology is the most prominent in young patients. A lot of researches are undertaken to studying of factors which lead to disturbance of blood supply in the vertebrobasilar basin. At the same time the proper features of metabolism in such category of patients are still not completely revealed. The special interest represents determination in the blood some metabolic indexes, which can reflect the severity of vessels damage, state of microcirculation and vasomotor reactivity, and the level of tissue hypoxia, are of the main interest also.

**Aim.** The research was aimed to a study the content of biogenic amines and correlation of their blood levels in young patients with spondylogenic vertebrobasilar insufficiency (SVBI).

**Materials and methods.** 65 patients with SVBI aged from 25 to 40 years old, undergoing treatment in neurological department of Kharkov Regional Clinical hospital were examined. The diagnosis was confirmed in the in-patient department. The 20 healthy volunteers of the corresponding age were recruited to the control group. The content of biogenic amines by thin layer chromatography on a column of cationic exchange resin «Dowexr» with followed analysis of fractions using spectrofluorometry was determined.

**Results.** It was set, that the concentration of adrenaline in 50% cases was reliably higher in study group, than in the healthy volunteers ( $3,65 \pm 0,27$  nM/l vs  $1,95 \pm 0,11$  nM/l). The level of noradrenaline in study group patients only in 3% cases corresponds to the physiological norm, in 95% cases – it was lower than levels in control group ( $18,45 \pm 1,12$  nM/l vs  $26,34 \pm 1,08$  nM/l). Adrenaline/noradrenaline ratio in patients with SVBN was reliably higher, than in a control group ( $0,20 \pm 0,01$  vs  $0,072 \pm 0,002$ ), that testifies confirms the predominance of hormonal link of regulation and deficit of mediator's link. Concentration of Serotonin in patients with SVBI was reliably higher, than in a control group ( $0,78 \pm 0,03$  mkM/l vs  $0,45 \pm 0,03$ ). It is known that a serotonin and adrenaline possess to expression of vasoconstriction effect, that in cases of the lack of Noradrenaline (the



modulator of vascular effects) can become the a reason of hypertension and, as a result, devascularizations damage.

**Conclusions.** The obtained results entitles us to conclude that the role of disbalance in the catecholamins system and high level of serum serotonin play remarkable role in development of hypoxia in the young patients with SVBI.

**Novak A.S.**

### **NEUROPLASTICITY ASPECTS OF THE TRAUMATIC BRAIN INJURY CONSECUENCES**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Pathogenetic cascade damage in traumatic braim imjury (TBI) has been well studied , but the possibility of adaptation and repair processes is not well understood. It is known that endogenous protective activity provide: neyrotrofichnost , neuroprotection , neuroplasticity and angiogenesis.

**Aim.** To study the neuroplasticity aspects of the traumatic brain injury consequences.

**Results.** It is known, that neuroplasticity is a collection of various remodeling processes of synaptic connections, designed to optimize the functioning of neuronal networks. Neuroplasticity is the process of biological adaptation script associated with the structure and the functional reorganization of the central nervous system. It begins at the cellular level, and neuronal processes , including synaptic transmission, and reconstitution of neuronal functioning. Through the processes of neuroplasticity nervous tissue capable of resuming its function by qualitative and quantitative changes perekroek - neuronal and glial cells. Activation is accompanied by stimulation of neuroplasticity expression of certain genes, biosynthesis of receptor molecules and ion channels , synaptic proteins filamentous cytoskeletal neurotransmitter components of synaptic membranes, intercellular adhesion molecules, immature form of contacts, their aging, activation, hypertrophy and reorganization of active synapses . The main principle of neuroplasticity is the phenomenon of synaptic sprouting: the brain in the process of unloading and creating of connections between neurons. Distinguish between fast and slow neuroplasticity. Fast neuroplasticity occurs in acute stress situations. It is based on the activation of the cerebral cortex is not involved previously horizontal connections, as well as modulation of synaptic transmission. After a traumatic head injury observed neuroplasticity occurring during recovery of lost functions after damage nerve tissue structures. Local damage to brain tissue lead to the activation of reactive and reparative mechanisms of neuroplasticity. Also TBI may occur the pathological neuroplasticity, in which there are new false connections, which are not in the normal conditions. Under the influence of pathological neuroplasticity activity increases activity of pathological functional systems that are becoming resistant to various, including medication. Pathological neuroplasticity contributes to pathological excitation generators. From this position can be attributed to the pathogenesis of many forms of epilepsy , including post-traumatic epilepsy.

**Conclusion.** TBI occurs the activation of neuroplasticity, rigid plastic response surviving neurons in the affected area, the formation of new interneuronal communication comes restructuring similar to neuronal function, not previously involved and located at a distance from the site of injury.



**Orlova T. V.**

## **LOW DOSE NALTREXONE THERAPY IN MULTIPLE SCLEROSIS**

**Kharkov national medical university, Kharkov, Ukraine**

**Introduction:** Multiple sclerosis (MS) is a chronic disseminated disease which affects mostly peripheral nervous system. Low-dose naltrexone (LDN) may promote psychological well-being as well as health in general especially in autoimmune disorders. The objective of this study is to assess the effect of LDN on the Quality of Life (QoL) of patients with primary and secondary progressive MS using the scales and composite scores of the questionnaire.

**Materials and methods:** In 3 clinical multicenter randomized placebo -controlled studies (1,5-6 months) of 120 volunteers aged 15-65 years with primary and secondary progressive MS with disease duration longer than 6 months. Treatment was produced with 3-4,5 mg nightly Naltrexone. The primary outcome of the study was comparison of the scores of physical and mental health. The results obtained in the middle and at the end of study between the two groups.

**Results:** It was found out that low dose naltrexone significantly improved quality of life (specifically, mental health, pain and self-reported cognitive function), but no impact was observed on aspects of physical quality of life (such as fatigue, bowel and bladder control, sexual satisfaction, and visual function). Vivid dreaming and mild agitation was reported during the first week of treatment by some patients.

**Conclusion:** The study clearly illustrates that LDN is a relatively safe therapeutic option in primary and secondary progressive MS. LDN significantly improved mental health and the quality of life. But its efficacy is under question and probably a long duration trial is needed in the future.

**Pogorelova O.**

## **ANIMAL-ASSISTED THERAPY AS A METHOD OF PSYCHOTHERAPY IN PATIENTS WITH DIFFERENT PSYCHIATRIC DISORDERS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Contemporary globalization, pace of life and environmental impact lead to an increase of the number of diseases including psychiatric ones. As well as many methods of treatment used in psychiatry, animal-assisted therapy is used for treatment of different psychiatric disorders.

**Aim.** In this work we consider animal-assisted therapy as a method of treatment and correction of different psychiatric diseases and disorders. We also systemize positive effects of animals influence to human.

**Results.** Animal-assisted therapy is the method of psychotherapy which uses animals for helping people. This, apparently, explains the fact that cats, dogs and other animals have a positive therapeutic effect on people. The main types of animal-assisted therapy are: - Hippotherapy (therapy with horses) is used in treatment of disorders of the musculoskeletal system, traumatic brain injuries, polio, mental retardation. Communication with horses gives a stable and positive emotional background. - Dolphin-therapy. Communication with dolphins helps to stabilize the psycho-emotional state of a person, remove psychological stress. We can see especially positive effect on people suffering with diseases that include anxiety-phobic components - Canistherapy is a kind of animal-associated therapy that uses



dogs. Dogs are great for psychotherapy in people suffering from disorders in communication, social adaptation and having autistic traits.

The therapeutic effects of animal-assisted therapy are: stress coping, reducing of feelings of loneliness, anxiety, depressive symptoms, stimulation of the activity (including verbal) in children, the development of their communication skills, reducing aggression, increasing self-esteem, development of intellect, increasing attention

**Conclusion.** Thus, we can note the positive impact of communication with animals per person, which can be used not only in psychotherapy, but also as a preventive and developmental purposes.

**Solyanik A.O., Riznychenko O.K.**

**EFFICIENCY OF THE USE OF POLYUNSATURATED FATTY ACIDS (PUFAS) IN TREATMENT OF CEREBRAL ATHEROSCLEROSIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of neurology**

**Introduction.** Treatment of atherosclerosis – one of main problems of practicing doctor. Each year, cerebral arteriosclerosis reveal more than 10% of the population of our planet. Most susceptible to the disease in people aged over 50. For a long time, cerebral arteriosclerosis can not show himself or masquerade as other diseases. Therefore, it is often diagnosed cerebral arteriosclerosis already advanced stages, when to make significant health improvements already hard enough.

**Aim.** To study of efficiency of the use of polyunsaturated fatty acids(PUFAs) in treatment of cerebral atherosclerosis.

**Materials and methods.** We examined 6 elderly people aged 59-63 years, including 4 women and 2 men with diagnosed of Essential Hypertension degrees II, cerebral atherosclerosis. For all patients the indexes of general cholesterol, low density lipoprotein and very low density lipoprotein, triglycerides and apolipoproteins were enhanceable.

**Results.** During our research all patient in complex therapy, including antihypertensive and cardiovascular agents, was also appointed as the drug of polyunsaturated fatty acids, which they took for 2 months. On expiration of this term the estimation of lipid metabolism was repeatedly conducted, where 3 patients showed significant declines, and at other half – these indexes were within the limits of norm.

**Conclusions.** Our study showed that the use of drugs of polyunsaturated fatty acids significantly reduces blood lipid profile, and thus proves the effectiveness of their use in the treatment of atherosclerosis.

**Tkachenko D. V., Feldman D. A.**

**CO- OPERATION OF DERMATOLOGIST AND PSYCHIATRIST IN DIAGNOSTICS OF DERMATOPATHOMIMIA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of psychiatry, narcology and med. Psychology**

**Department of dermatology, venerology and med. Cosmetology**

**Scientific advisers: Khaustov M.N., Tkachenko S. G.**

**Introduction.** According to the modern literature the prevalence of self-destructive dermatoses is 2.3 % of total primary out patients. Pathomimia ( from grech.pathos - suffering, disease + mimesis , imitation, image) – is an artificial ( orthotopic ) dermatitis,



arising from skin self-injuries and its appendages. In psychiatry, the term "pathomimia" is identified with Munchausen syndrome, which is characterized by deliberately dramatic and improbable complaints of imaginary physical illnesses and means an intentional imitation of an acute disease by applying self-harming.

**Materials and methods.** This study provides an analysis of the current scientific and practical medical literature, clinical experience, diagnosing of dermatopathomimia. The following electronic resources were used: The National Library of Medicine (USA): <http://www.ncbi.nlm.nih.gov/pubmed/>, Institute for Clinical Systems Improvement (ICSI): <http://www.isci.org/>, The Science Directory (Elsevier, UK): <http://www.sciencedirect.com/>, National Institute for Health and Clinical Excellence (UK): <http://www.nice.org.uk/>, Medscape: <http://www.medscape.com/>. Search for particular data on the Internet is done with the help of search engine [www.google.com](http://www.google.com) and [www.google.com.ua](http://www.google.com.ua). Modern scientific sources (not older than 10 years) were selected for analysis. More out of date were included only in case of exceptional importance of information.

**Results.** We studied 23 sources corresponding search regulations. The selected sources describe separate clinical cases of Munchausen syndrome or small-scale perspective clinical researches. Analysis of the literature showed that today there are neither domestic standards of dermatopathomimia diagnosing and treating nor international guidelines of skin pathomimia management. In all cases initial reception of patients with clinical signs of dermatopathomimia is performed by a dermatologist. However, in the ICD-10 in the class of skin diseases and hypoderm self-induced dermatoses the subdivision L 98.1 «Artificial dermatitis / neurotic excoriations» is assigned. "The diagnosis of "pathomimia" F 68.1 is reflected in the category F60-F69 The individual and behavior disorders at mature age and includes the subheading F68.1 «Intentional causing or simulating the symptoms or disability of physical or mental nature (fake disorder)». The analysis of the literature showed that the most common complaints were pain and itching of the skin. Among the reasons of the rash patients reported an injury, contact with an allergen, insect bites, but more often could not specify the reason. The most common primary dermatological diagnoses were skin furunculosis, pyoderma, vasculitis, Duhring's dermatitis herpetiformis, discoid lupus erythematosus. Improbable complaints, doubtful medical history, quaint geometrically irregular shapes of the rash, their linear, polygonal character, various size of elements, localization on available to self-action areas of the skin were the most reliable criteria in the aspect of dermatological diagnosis of pathomimia. All patients denied autoaggression.

**Conclusions.** In cases of suspected simulation dermatologist carries out a thorough examination with the obligatory pathomorphological study to exclude other dermatoses and sends the patient to a psychiatric consultation to determine the final diagnosis and treatment. As a result of the treatment by antipsychotic drugs and tranquilizers (neuroleptics) at low doses craving for skin self-injury was stopped, and half of the patients admit the fact of autoaggression. In case of refusal to visit a psychiatrist in the absence of criteria for involuntary psychiatric examination, as well as the refusal to receive a psychiatric treatment the disease lasts for years and is not treatable by local or systemic symptomatic agents.



**Voloshin-Gaponov I.K.**  
**FUNCTIONAL CHANGES IN PATIENTS WITH CEREBRAL**  
**HEPATOLENTICULAR DISEASE**

**GE «Institute of neurology, psychiatry and narcology NAMS of Ukraine»,  
Kharkiv, Ukraine**

**Introduction.** Hepatolenticular disease (HCD) is rare, progressive hereditary, autosomal recessive disorder, characterized by disturbance of copper metabolism and its excessive accumulation in the liver and brain. With the accumulation of copper in the brain structures preneurologicheskaya abdominal stage of the disease goes into the development of various neurological and psychopathological symptoms and syndromes.

Currently, the study of structural and functional state of the brain, along with a variety of neuroimaging studies (CT, MRI, MR spectroscopy) is still used method of electroencephalography (EEG), as it is relatively radiant processes neural activity at any level. Computer EEG is an open-minded non-invasive and quantitative method for assessing the functional status of both cortical and subcortical- stem structures that regulate cortical activity.

**Material and methods.** In our paper we present the results of a electroencephalographic survey of 36 patients Konovalov-Vilson disease (KVD). There were 14 women and men 22 people. During the term of the institute average age of patients was 28.1 years. The age range of patients was from 17 years till 49 years. 20 patients were examined in the dynamics.

**Results.** The age of patients in the appearance of the first symptoms of the disease averaged 22.9 years. With a range from 5 to 47 years. Time from symptom onset to definitive diagnosis, and therefore the beginning etiopathogenetic therapy was averaged 2.6 years and ranged from 1 to 6 years. KVD diagnosis raised or confirmed in the clinic of the Institute on the basis of having rings Kayser - Fleischer, reduced ceruloplasmin below 20 mg / dL , and increased excretion of copper in the urine of more than 100 mcg / day . In 12 patients the diagnosis was confirmed by molecular genetic studies. EEG recording was carried out using a computer diagnostic complex "Neuron - range +". Analysis of the structure of brain activity showed that patients HCD noted complex picture of regional and inter-hemispheric differences in the structure and timing of bioelectric activity. Electroencephalographically shown that these patients are signs polysystemic , multi-level functions of the brain lesion . We noted, according to the coherence coefficients, reduced interhemispheric and especially intrahemispheric synchrony and desynchronization of alpha - rhythm and replace it with high- beta - the activity of brain activity in patients with IOO, obviously connected with the available in these patients various psychopathological symptoms and syndromes.

**Conclusions.** Thus, by analyzing the structure of brain activity in patients with established features of the structure of HCD electrogenesis brain depending on the form of HCD and duration of the disease. Data analysis of brain activity in patients with HCD show that nearly half (42%) of them have increased convulsive readiness. In terms of electroencephalographic studies can determine the dynamics of the functional state of the brain in patients with HCD , and hence the effectiveness of the treatment.



**Yaseen Ahmed, Kufterina N.S.**

## **CLINICAL AND EPIDEMIOLOGICAL ASPECTS OF MOYA-MOYA SYNDROME**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction.** Moya-moya syndrome is an increasingly recognized arteriopathy associated with cerebral ischemia and has been associated with approximately (6%) of the childhood strokes . It is characterized by chronic progressive stenosis at the apices of the intracranial internal carotid arteries (ICA), including the proximal anterior cerebral arteries and middle cerebral arteries.

**Aim .** To study the clinical characteristics and treatment of Moya-moya syndrome

**Materials and methods.** The current researches in the topic moya-moya disease were analyzed, the case history of a 21 years old patient with moya-moya was studied.

**Results.** While studying the case it was found that the clinical features started with the weakness in the left arm which started without any reason, lasting in dizziness and headache. And in the MRI - on series of tomograms in Centrum semiovale of the cerebral hemispheres with 2 sides are determined by isolated small pockets of slightly hyperintense on T2 -weighted images . Median structures are not displaced. The ventricular system is of the correct form, normal size. Subarachnoid space convexital surface of the cerebral hemispheres fronto-parietal regions and in the right occipital region is slightly widened .

**Conclusion:** The signs of encephalopathy (likely residual- organic nature), light external hydrocephalus and the MRI angiography mode - on MR images of the brain performed in angiographic mode , blood flow in the internal carotid and basilar arteries visualized. Marked asymmetry of blood flow in the vertebral arteries (D> S). Blood flow in the anterior cerebral and middle cerebral arteries dramatically reduced (" symptom amputation "). There have been multiple convoluted, "cloud-like " vascular shadows in the basal ganglia and white matter of the brain bilaterally . Patient was treated with drugs such as antiplatelet agents (including aspirin) to prevent clots.

**Conclusion.** The disease Moyamoya is of the rare neurological diseases which can lead to strokes and early diagnosis of the disease can lead to the good result of the treatment and the clinical features are strokes, recurrent transient ischemic attacks (TIAs), sensorimotor paralysis (numbness and paralysis of the extremities), convulsions and/or migraine-like headaches , the recommended treatment is the surgical revascularization for the disease using in-direct procedures EDAS, EMS, and multiple burr holes and the direct procedure STA-MCA .

**Zelenska K.A.**

## **FEATURES OF FORMING SUICIDE BEHAVIORS IN YOUNG PEOPLE.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Aim.** With the purpose of the development of the pathogenically proved system for suicide behavior's correction and prophylaxis complex investigation of 155 persons of the young age which had made suicide attempt and after that have been treated with diagnosis F43.0 - acute reaction to stress is carried out.

**Methods:** clinical-psychopathological, psychodiagnostic, biochemical, statistical

**Results.** Causation of biological, social - psychological and clinical-psychopathological factors in forming of suicide behavior at acute reaction to stress is



determined. Pathogenically significant psychotrauma circumstances are systematized. Astheno-anxiety, asthenical, and anxiety - melancholy variants of psychopathological semiology are allocated.

**Conclusions.** It is shown, that increasing of serotonin concentration and decreasing of melatonin level in blood, decreasing of adrenaline and noradrenaline speed excretion at patients with suicide behavior are observed. New approaches to the individual pathogenically proved programs of correction, initial and secondary prophylaxis are developed.



## OPHTHALMOLOGY

**Duras A.**

### **ACCOMMODATION-INDUCED CHANGES IN IRIS CURVATURE**

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**Ophthalmology department**

**Introduction.** Although the most important consequence of accommodation is a change in focal distance, the mechanical consequences of accommodation are also important. Accommodation leads to posterior bowing of the iris, particularly in patients with pigment dispersion syndrome (PDS)

**Material and methods.** Eyes were imaged using anterior segment ultrasound biomicroscopy to compare alterations in iris contour following the onset of accommodation in eyes with narrow angles, pigment dispersion syndrome, and controls. A radial perpendicular image in the horizontal temporal meridian was obtained for one eye while the subject focused on a distant target (unaccommodated state) with the fellow eye. The subject then focused steadily on a near target (accommodated state) for three minutes. Images were acquired at 0, 1, 2, and 3 minutes. Iris curvature was determined by measuring the maximum distance between the posterior iris surface and a line from the iris root to the first point of contact between the iris and lens.

**Results.** In control subjects ( $n = 7$ ), iris curvature decreased immediately after the onset of accommodation, but not significantly, from  $246 \pm 37 \mu\text{m}$  to  $205 \pm 82 \mu\text{m}$ ; curvature increased after three minutes of accommodation to  $298 \pm 57 \mu\text{m}$ . Eyes with pigment dispersion syndrome ( $n = 12$ ) exhibited curvatures of  $60 \pm 79 \mu\text{m}$  when unaccommodated,  $-3 \pm 83 \mu\text{m}$  immediately after accommodation, and  $146 \pm 94 \mu\text{m}$  three minutes later. Eyes with narrow angles ( $n = 16$ ) exhibited curvatures of  $449 \pm 45 \mu\text{m}$  when unaccommodated,  $414 \pm 46 \mu\text{m}$  immediately after accommodation, and  $523 \pm 40 \mu\text{m}$  three minutes later.

**Conclusion.** The results confirm the time-dependent nature of iris contour response, with significant differences observed between the initial observation after accommodation and the observation three minutes later. The largest drop in curvature immediately after accommodation and the most rapid increase in curvature during subsequent observation were seen in the PDS subjects. We suspect that the more rapid increase in curvature in the PDS subjects is due to the elevated anterior-chamber pressure caused by the "reverse pupillary block" effect.

**Friantseva M., Samofalova M.**

### **FORMS OF THE OPTIC NERVE'S DAMAGES WITH ISOLATED OPTIC NEURITIS AND UVEITIS, COMPLICATED BY OPTIC NEURITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Ophthalmology department**

**Scientific leader – professor Panchenko M.**

**Introduction.** According to Vilbrand's and Zenger's researches (1913), there are three forms of optic nerve damages: neuritis axialis, neuritis interstitialis peripherica and neuritis transversa totalis. Differentiation into these forms is based on the morphological principle



(damage of the optic nerve's appropriate structures) and visual fields loss. At the neuritis axialis inflammatory process covers papillo-macular sheaf, while the part of the visual field is marked by central scotoma, visual field boundaries remain normal. At the neuritis interstitialis peripherica inflammatory process begins in the soft shell and goes to the peripheral nerve fibers layers. Also are noted varying degrees narrowing of the visual field boundaries. At the neuritis transversa totalis the entire diameter of the optic nerve is involved by inflammatory process.

**Aim:** To study the forms of the optic nerve's damages with isolated optic neuritis and uveitis, complicated by optic neuritis.

**Materials and methods:** To solve this problem was analyzed medical records of 67 patients (76 eyes) with damages of the optic nerve, which were hospitalized at the eye department for adults of Kharkiv's Regional Clinical Hospital for the period 1994 - 2010. The age of patients was from 15 to 64 years old (mean age - 36 years). Men were included group of 30 (44%), women - 37 (56%) patients. I group amounted 14 patients with papillitis, II group amounted 24 patients with retrobulbar optic neuritis and III group - 29 patients with uveitis, complicated by optic neuritis. Ophthalmical examination methods included biomicroscopy, ophthalmoscopy, visometry, static perimetry.

**Results:** Neuritis interstitialis peripherica was diagnosed in 73.0% of cases (11 eyes) with papillitis, in 18.5% of cases (5 eyes) with retrobulbar optic neuritis, in 87.5% of cases (14 eyes) with uveitis, complicated by optic neuritis and in 61.5% of cases (11 eyes) with neurochorioretinitis. Neuritis axialis was diagnosed in 13.5% of cases (2 eyes) with papillitis, in 59.0% of cases (16 eyes) with retrobulbar optic neuritis, 6.25% of cases (1 eye) with uveitis, complicated by optic neuritis, in 33.0% of cases (6 eyes) with neurochorioretinitis. Neuritis transversa totalis was diagnosed in 13.5% of cases (2 eyes) with papillitis, 22.5% of patients (6 eyes) with retrobulbar optic neuritis, 6.25% of cases (1 eye) with uveitis, complicated by optic neuritis, and 5.5% of patients (1 eye) with neurochorioretinitis.

**Conclusion:** It was thus established that the neuritis interstitialis peripherica is more common in uveitis, complicated by optic neuritis, papillitis and neurochorioretinitis. Neuritis axialis is more common in retrobulbar optic neuritis and neurochorioretinitis. Neuritis transversa totalis more common in retrobulbar optic neuritis and papillitis.

### GulidaA

## FEATURE OF LAMINA CRIBROSA CHANGES IN PATIENTS WITH MYOPIA

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Ophthalmology department

**Introduction.** Myopia is one of the most prevalent disorders of the eye. It is a global public health problem leading to visual impairment and blinding complications. The economic costs of myopia are also high. The medical burden of high myopia includes pathologic complications such as myopic macular degeneration, choroidal neovascularisation, cataract and glaucoma. Uncorrected refractive error could also impair vision-related quality of life and increase difficulty in performing vision-related tasks. Progression of myopia is caused by stretching the sclera. In the exit of the optic nerve in the posterior pole of the eye the lamina cribrosa (LC) locates. It is a meshlike structure that composed of overlapping and branching collagenous beams. These collagen beams form



pores through which bundles of retinal ganglion cell (RGC) axons and the retinal blood vessels pass and preserves a pressure gradient between the intraocular and extraocular space. Histologic studies using animal, cadaver, or enucleated eyes have provided a bulk description of the deformations and displacement of the LC in eyes with glaucoma. However such studies have not been conducted in patients with myopia. This determines the relevance of a particular topic.

**Aim:** To analyze the results of research of LC using optical coherence tomography (OCT) and eye fundus photography in patients with myopia.

**Materials and methods:** under supervision were 7 patients with medium degree myopia. From 30 to 50 years old. During our examination OCT and eye fundus photography were used to obtain the visualization of LC and markers of its changes.

**Results:** During OCT test we got signs of LC changes in 3 patients. In eye fundus photography examination we obtained 3 patients with 1 stage, 4 patients with 2 stage with chorioretinal changes. (Classification of E. Avetisov).

**Conclusion:** With newer imaging techniques, namely optical coherence tomography, it is now possible to image the lamina and thus study its characteristics with respect to myopic changes. Imaging of the laminar surface may provide new endpoints to predict the development and progression of myopia.

**Honchar O., Pomogaev S.**

**AVERAGE NERVE FIBER LAYER THICKNESS DYNAMICS IN PATIENTS WITH PRIMARY OPEN-ANGLE GLAUCOMA BEFORE AND AFTER TREATMENT WITH L-ARGININE**

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**Ophthalmology department**

**Scientific leader – professor Bezdtko P.**

**Aim:** To study the effect of L-arginine on the thickness of the average nerve fiber layer thickness (RNFL) in patients with primary open-angle glaucoma (POAG).

**Materials and methods:** We examined 162 patients (287 eyes) with primary open-angle glaucoma of the first, second and third stages (men - 63, women – 99). The main group included 82 patients (146 eyes) with primary open-angle glaucoma. The control group included 80 patients (141 eyes) with primary open-angle glaucoma. The age of patients ranged from 40 to 87 years. Patients of the main group received intravenous nitric oxide donator – L-arginine (Ukrainian patent UA 52177 U). All patients and control group underwent conventional ophthalmic examination methods, as well as static computer perimetry and optical coherence tomography before and after treatment.

**Results:** The average thickness of the nerve fiber layer was studied in the prior course of treatment and one month after its completion. It was found that the application of L-arginine in the complex treatment of patients with primary open-angle glaucoma in 78,9% of eyes was inducing significant changes in the average thickness of the RNFL. Decrease of average RNFL thickness in the main group was observed in 21,1% of eyes. Patients in the control group who received standard therapy showed stabilization of average RNFL thickness in 37,0% of eyes. Decrease in the average RNFL thickness in the control group was observed in 63,0% of eyes. The analysis of the results showed that the trends mentioned above persisted in subgroups of patients with different stages of POAG.



**Conclusion:** The use of L-arginine in patients with primary open-angle glaucoma increases the frequency of stabilization of the average nerve fiber layer thickness more than 2 times, compared with patients not treated with L-arginine.

**Hromova J., Pakhomova A.**

**ORIENTATION STABILITY OF SOFT TORIC SILICONE HYDROGEL CONTACT LENSES WITH DIFFERENT TYPES OF BALLAST**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Ophthalmology department**

**Introduction.** Number of selection toric soft contact lenses has increased dramatically in the world and consists one-fourth of all prescriptions of contact lenses for primary patients in the last years. 35-40% of people among of all contact lens wearers in Australia, USA, UK and Canada use soft toric lenses (British Contact Lens Association, 2013).

**Aim.** The aim of study was to assess the orientation stability of soft toric silicone hydrogel contact lenses with different types of ballast in patients who have clinically significant astigmatism. Also we wanted to improve patient satisfaction and quality of vision in patients, leading an active lifestyle and practicing with dynamic sports.

**Materials and methods.** 29 patients (58 eyes) with clinically significant miopic astigmatism from 0,75 D to 2,25 D took part in our research. There were 21 female patients (42 eyes) – 65%, 6 male patients (12 eyes) – 35%, the age varied from 21 to 36 years. Besides standard ophtalmological exmination we performed the following diagnostic tests: assessment of physical and physiological lens landing (Axis Auto Ref-Keratometer TSRK-100, PP EUCARIS terascience, ast tests), measurement of orientation marks and stability of position of the contact lens, Norn test, Schirmer test. We divided all patients into two groups. The first group of patients (n = 16) used soft contact lenses Toric Air Optix for Astigmatism with stabilization Precision Balance 8/4, the second study group (n = 13) used soft contact lenses Acuvue Oasys for Astigmatism with accelerated stabilization design .

**Results.** In both groups we noted: full coverage of the cornea by soft contact lenses, adequate mobility (0,2 – 0,4 mm), in a smooth glide Push-up test, the optimal position of the orientation marks. Stabilization time in the first group was  $58,2 \text{ s} \pm 2,1 \text{ s}$ , and  $56,2 \text{ s} \pm 2,1 \text{ s}$  in the second group ( $p > 0,05$ ). Toric soft contact lenses designed for astigmatism need adequate fixation of axis positions on the eye. We found no complication in eyes of our patients.

**Conclusions.** In our view, confidence in the selection of soft toric contact lenses for patients gives acceleration of orientation of the lens stabilization, provides sufficient oxygen transport to the cornea and a simplified procedure for selection. We showed that patients leading active lifestyle have an opportunity of using soft toric contact lenses.

**Ivzhenko L.**

**MEIBOMIAN GLAND DYSFUNCTION IN PATIENTS WITH SEVERE NONPROLIFERATIVE DIABETIC RETINOPATHY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Ophthalmology department**

**Scientific leader – professor Bezdetko P.**

**Materials and methods.** The main group - 32 patients with severe nonproliferative diabetic retinopathy aged 47-70 years (13 male, 19 female). The control group - 10 healthy



persons of the same age (5 males, 5 females). Standard ophthalmological examination, the Schirmer's test, the Norn's tests, determination of the ocular protection index (OPI), performance of squeezing secretions (Korb and Blackie) test, LIPCOF test, LWE test, IVAD test. Classification of meibomian gland dysfunction by Maychuk and Mironkova 2007 was used to evaluate the severity of meibomian gland dysfunction.

**Results.** All indicators of meibomian glands secretion among patients with severe nonproliferative diabetic retinopathy were decreased in comparing with the control group. The 1 grade meibomian gland dysfunction was noticed in 9,4 % of cases, the 2 grade was detected in 43,8 % of cases, the 3 grade - in 28,1 % of cases, the 4 grade - in 15,6 % of cases, the 5 grade - in 3,1 % of cases.

**Conclusions.** Our findings suggest that meibomian gland dysfunction develops among all patients with severe nonproliferative diabetic retinopathy. The 2 and the 3 grade meibomian gland dysfunction occur more often.

**Khramova T., Kaznacheyev G.**

**PREVALENCE OF CONFIGURATION OF PLATEAU IRIS AT PATIENTS WITH ANGLE-CLOSURE GLAUCOMA ACCORDING TO THE UBM RESEARCH**

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**Ophthalmology department**

**Scientific leader – professor Panchenko M.**

**Introduction.** Plateau iris is a type of narrow angle more commonly seen in younger adults that can lead to chronic angle closure glaucoma. Plateau iris refers to the anatomical configuration of the iris. Thanks to emergence in ophthalmologic practice of a method of the ultrasonic biomicroscopy (UBM), there was a possibility of studying of the anterior segment of an eye where visualization by means of standard techniques is impossible. This high-informative method allows to receive large volume of information on the patient and to define the most optimum tactics of treatment in each case.

**Aim.** To study prevalence of configuration of a plateau iris(CPI)ft persons with angle-closure glaucoma (ACG).

**Materials and methods.** For research were selected 20 persons (40 eyes) with ACG diagnosis. The ultrasonic biomicroscopy was conducted on ultrasonic biomicroscope of UMAX Sanomed (USA) by the sensor with purity of 50 MHz.

**Results:** At an assessment of the received results the specific signs of CPI: the direct profile of an iris, anteriorly located ciliary processes, which close the ciliary sulcus — were taped in 24% of cases . So in 63% these signs were taped in two quadrants, in 30% in three quadrants and in 7% in four segments. In this situation anteriorly located ciliary processes on an appreciable extent adjoined to the back surface of the iris, closing a ciliary sulcus and raising a radical zone of the iris to a corneal endothelium. Thus the back chamber kept a triangular form, but its depth was reduced because of partial closing of a back chamber with ciliary processes.

**Conclusions.** Thus, signs of a configuration of a plateau iris were taped by UBM at 24% of patients with ACG. Therefore thanks to UBM research, probably in details to estimate anatomo-topographical features of the anterior segment of an eye in various quadrants and to tap the pathological changes demanding differentiated approach to the choice of tactics of further treatment.



**Lytvyshchenko A., Samofalova M.**  
**OUR EXPERIMENT THE USE OF METHOTREXATE IN PATIENTS WITH**  
**UVEITIS**

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**Ophthalmology department**  
**Scientific leader – professor Panchenko M.**

**Introduction:** Uveitis is the third leading cause of blindness in the developed countries. The annual incidence is estimated between 17 and 52 per 100,000 persons, and the prevalence is 38–714 per 100,000 persons (Wakefield D. et al., 2005). Today the problem of uveitis has socio-economic consequences, as a result with involvement the persons of working age, and sometimes asymptomatic and untimely treatment and serious complications. Use of methotrexate as a treatment for ocular inflammation was reported Wong V. et al (1965). The methotrexate to be effective for ocular inflammation in general (Okada A. et al., 2005) as well as for specific ocular inflammatory conditions, including juvenile idiopathic arthritis-associated uveitis (Foeldvari I. et al., 2005; Shetty A. et al., 1999), sarcoidosis (Dev S. et al., 1999), sympathetic ophthalmia (Lazar M. et al., 1969) and corticosteroid-resistant uveitis (Holz F. et al., 1992). According Malik A. et al. (2005), methotrexate in patients with uveitis promoted regression of inflammation in the anterior chamber at 60% and reduction in daily requirements and local oral corticosteroids with minimal side effects (Malik A. et al., 2005). According Gangaputra S. et al. (2009) appointment of methotrexate in patients with uveitis promoted the regression of the inflammatory process in terms of treatment and 6 months.

**Aim:** To explore the effect of methotrexate on the inflammation in patients with uveitis.

**Materials and methods:** Were examined and treated 3 patients (3 girls 5, 9 and 16 years) with uveitis. All patients along with common ophthalmologic examination was performed ultrasound biomicroscopy, optical coherence tomography and static computer perimetry. Until to the appointment of methotrexate patients were examined in a pediatric hospital, in one patient was diagnosed the juvenile arthritis. Methotrexate was administered as an alternative to systemic corticosteroids in 2 patients in connection with difficult uveitis, 1 patient - in connection with difficult uveitis and juvenile arthritis.

**Results:** As a result of the treatment with methotrexate inflammatory process was reduced in all eyes. In the 4 eyes was reduced of inflammation associated with increase in visual acuity (1 eye diagnosed full uveal cataract). In patient with juvenile arthritis noted the disappearance of articular pains and a significant improvement in the general condition. In 4 eyes after methotrexate treatment was determined the resorption of exudate (according to ultrasound biomicroscopy) in the vitreous base and prebasal vitreous.. In 2 eyes, with uveitis complicated by optic neuritis, consequently of methotrexate treatment was noted the decrease of hyperemia and edema of the optic disc. In 4 eyes which uveitis complicated by macular edema after treatment with methotrexate was observed regression of macular edema, according with optical coherence tomography.

**Conclusion:** Thus methotrexate is an effective treatment for patients with difficult refractory uveitis. Use of the this drug promotes reduction of inflammation and regression of macular edema and edema of the optic disc.



**Srebna I., Pakhomova A.**  
**EFFICIENCY OF THERAPEUTIC SILICONE HYDROGEL CONTACT LENSES USING**

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**Ophthalmology department**

**Introduction.** A new era in the treatment of corneal pathologies was opened by invention of soft hydrophilic contact lenses (CL), which have been known to relief pain, promote epithelization of the cornea and which have been used as mechanical protection. Nowadays a unique combination of silicone with high oxygen permeability and a hydrogel has been recognized as the most promising for therapeutic applications.

**Aim.** The aim of the study was to determine the efficiency of silicone hydrogel soft contact lenses (SiHydSCLens) using for therapeutic purposes.

**Materials and methods.** Two types of SiHydSCLenses approved FDA (Food and Drug Administration) for therapeutic application were used. Air Optix Night&Day (Ciba Vision) CL were used up to 30 days and Acuvue Oasys (Jonson&Jonson) CL were used up to 14 days. Patients had endothelial-epithelial corneal dystrophy and recurrent cornea erosion. These CL were previously medicated with 1% solution of Thiotriazolin. The use of SiHydSCLenses was combined with the prescribing of regenerating, keratoplasty medicaments in all cases.

**Results.** It was found that SiHydSCLenses with tight fitting were better for reducing the mechanical action on the damaged cornea. They improved epithelization under the lens in particular with a base lens curvature of 8.4 mm. This curving didn't influence the thickness of the tear layer under the lens. SiHydSCLenses performed rapid epithelization of the cornea because they reduced shift gently attached to the basement membrane of epithelial cells. Administration of therapeutic CL significantly improved treatment of corneal pathology, contributing decreasing of the corneal syndrome, performing rapid epithelization of the cornea and prolongation of local effects from drugs.

**Conclusions.** Ultrathin silicone hydrogel CL with high oxygen permeability should be suggested for modern treatment of corneal diseases.

**Stoliarova O.**  
**BINOCULAR VISUAL FIELD IN GLAUCOMA PATIENTS**

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**Ophthalmology department**

**Introduction:** The problem of glaucoma is one of the most important in ophthalmology because of its great medical and social importance and vision loss as an outcome. The frequency of glaucoma is constantly increasing and this disease is one of the main causes of vision loss. To detect the eye pathology we need to test the visual field of each eye separately. But our perception is determined by two eyes. The progression of glaucoma is accompanied by scotomas and their incensement. In glaucoma vision loss begins on the periphery and central vision loss happens only on the late stages of a disease.

**Aim:** To test binocular vision field loss in glaucoma patients.

**Materials and methods:** For binocular visual field assessment two approaches can be used. The first is to combine results of monocular testing. Nelson - Quigg et al. state that by using one of the models (best location model, binocular summation model) it is possible to



predict the results of binocular testing. The second approach is the test with two eyes open. For the assessment of binocular visual field and adaptation Esterman test was created. Later it was modified for automatic perimeters. Esterman test is based on function. Esterman instead of putting two monocular fields one upon another detected borders of the normal binocular visual field and made its projection. Then he divided it into parts of different size corresponding to their function. The important zones by Esterman are situated in the lower part of the field because the work done on close distances has more importance in the everyday life.

**Results:** We introduced Esterman test in our clinic. 12 patients were examined using this test. 4 of them had the initial glaucoma in both eyes, 4 had the initial glaucoma in one eye and advanced in the second eye, 2 had advanced glaucoma in both eyes and 2 had advanced glaucoma in one eye and final in the second eye.

**Conclusion:** The comparison of monocular and binocular visual field tests in glaucoma patients has shown the necessity of the binocular visual field testing in these patients for the assessment of the quality of life. It helps to increase the efficiency of diagnostics of patients with glaucoma and receive more accurate data about the influence of the disease on visual functions and quality of life.



## INFECTIOUS DISEASES

**Chumachenko D.I.<sup>1</sup>, Makarova V.I.<sup>2</sup>, Akopyan Y.V.<sup>2</sup>**  
**APPLYING THE MULTIAGENT APPROACH TO EPIDEMIC PROCESS  
SIMULATION**

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**Introduction.** The problem of spreading of infectious diseases has great social and economic importance for society in general. One of the modern means to formally describe the identified factors and execute forecast of epidemic status in society is a simulation. At the present time there is a standpoint that the most adequate the real behavior of large systems is the use of agent-based approach to the mathematical modeling and simulation, because it allows reducing drastically the number of restrictions.

**The aim** of the work is to construct an adequate multi-agent model and using it to provide targeted interventions to reduce the incidence of infectious disease by an example of viral hepatitis B.

**Results.** The information technology of the epidemic process which includes the following behavior of agents: changing its physical location in the virtual world; age-related processes; interaction with other agents; visitation establishments providing social services, where can exist the possibility of infection, has been developed. The model includes the following aspects: interaction of agents with objects and transmission of the infection from the agent to it, and vice versa; interaction between the agents and a transmission of the infection in a case when one of the agents is a carrier; course of the disease of agent taking into account stages that have different length and infectious potential. In the given agent-based model the environment represented by the three areas, consisting of cells' sets. Each cell can contain human-agents and the various objects that can be a carrier of infection (medical instruments, tools in beauty salons, hair salons, etc.). Each agent, in addition to the properties reflecting epidemical state, has properties such as age, gender, lifespan. Beyond that each agent has individual characteristics that determine the frequency and duration of his stay in each of the areas.

**Conclusion.** The simulation model of the epidemic process of viral hepatitis B, which allow: predicting of the dynamics of the epidemic process in time in a particular area, taking into account the specific epidemiological situation; testing the effectiveness of various preventive measures (sterilization of instruments, vaccination of certain groups of people, etc.).

**Feldman D. A., Chervan I.V**  
**CO-INFECTIO TUBERCULOSIS/HIV**  
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**Dep. of Phthisiology and Pulmonology**  
**Scientific adviser: Matveyeva S.L.**

**Introduction.** HIV-infection is the disease which develops as a result of long persistence of human immunodeficiency virus (HIV) in lymphocytes, macrophages and nervous system cells, and is characterized by progressing destruction of immune system.



AIDS – the final stage of HIV-infection, affected by immune and nervous systems defeat and displays the development of severe viral, bacterial, parasitic diseases and/or malignant neoplasms that may be fatal. In the world, sexual way of transfer of HIV prevails also it can be transferred through infected blood. There are several stages of development HIV-infection: acute HIV-infection, asymptomatic carrying stage, persistence generalised lymphadenopathy stage, AIDS – the final stage of clinical course of HIV-infection.

**Results.** About one third of all HIV-infected are infected MBT. In people presence of any infection, including tuberculosis, provokes faster distribution HIV-infection as immune system will lose ability to warn growth and to localize the distribution of MBT. Therefore disseminated and extrapulmonary diseases are more common the pulmonary tuberculosis remains the most widespread form in HIV-infected people. Its manifestation depends on degree of immunosuppression. In 20 cases in HIV-infected in a year after the tuberculostatic therapies begins, there comes fatal outcome either from tuberculosis or from other HIV-dependent pathology (sepsis, diarrhea, pneumonia, Kaposi's sarcoma, Cryptococci meningitis). Death rate of patients affected with HIV-infection and tuberculosis decreases if use standard modes of chemotherapy are used. The HIV-infected people with positive Mantoux test, contacts with open case of tuberculosis are prescribed chemoprophylaxis with isoniazid on 300 mg per day for adult with body weight no less than 50 kg during 12 months.

TB/HIV Co-infection. Undiagnosed and untreated TB is frequently found among people living with HIV/AIDS. Survey data in high-burden settings show that up to 10 percent of people living with HIV may have undiagnosed TB at the time of undergoing voluntary counseling and testing (VCT). TB, the most common opportunistic infection in people living with HIV, is a leading cause of death in this group. Only 1 in 10 people infected with TB who are HIV negative will develop TB in their lifetime. By contrast, among people infected with both TB and HIV, 1 out of 10 will develop TB each year. In high-burdened TB settings, 30 to 40 percent of people living with HIV will develop TB in their lifetime, in the absence of isoniazid preventive therapy (IPT) or antiretroviral therapy (ART).<sup>15</sup> The risk of developing TB is significantly higher in the first year after becoming HIV infected and gets progressively higher over time (WHO stages 3 and 4). These patients may be a source of infection to others. TB outbreaks affecting HIV-infected prisoners and health care workers because of exposures in health care facilities have been reported in industrialized countries. Furthermore, the diagnosis of TB in the presence of HIV infection is complicated by increased numbers of patients with pulmonary TB who are acid-fast bacillus (AFB) smear negative or who suffer extrapulmonary forms of disease (i.e., lymphatic, pleural, renal, bone, skin, or central nervous system TB).

TB control programs in prisons, as in the general population, need to address the distinct characteristics of TB in HIV-infected patients, especially in prisons. TB/HIV co-infection rates in prison have been found to be 10 to 20 percent higher than those found in the civilian population. Basic strategies include improving case detection of TB among people living with HIV, providing IPT for those without active TB, and providing diagnostic counseling and testing for HIV to patients diagnosed with TB. ART is also an important protective factor in co-infected individuals. The risk of TB is increased among patients who have underlying HIV, AIDS, or both. The magnitude of this risk varies according to the following: • Prevalence of TB in the population (active and latent TB); • Degree of immunosuppression caused by HIV; • Likelihood of exposure to infectious TB cases; • Accessibility of TB prophylactic treatment to people living with HIV (i.e., treatment



of latent TB infection [LTBI]). Some countries have low TB prevalence, but both TB and HIV are associated with distinct groups (e.g., prisoners, injection drug users) and minority ethnic populations, a fact that cannot be overlooked and warrants proper intervention.

Prevalence of and Mortality Due to HIV Infection among TB Patients. The WHO Global Tuberculosis Control 2008 report estimates that 8 percent of all TB cases are co-infected with HIV. Yet, this figure varies by region and different countries, ranging from as low as 1 percent in the western Pacific region to 38 percent in Africa; and more than 60 percent in southern Africa where 20 percent of people are infected with HIV. Fourteen percent of TB patients in most industrialized countries are co-infected with HIV. TB mortality is higher in settings with high HIV prevalence. Overall, TB-case fatality rate among HIV-infected patients reaches 40 percent. Final treatment outcome depends on availability of antiretroviral drugs, early treatment, and proper clinical management and effective care of TB-HIV co-infected individuals.

**Conclusions.** Effects of HIV Infection on the Course of TB. The strongest risk factor for the development of TB is infection with HIV. In immune-competent hosts who are infected with *M. tuberculosis*, the bacilli are contained in granulomas through cell-mediated mechanisms. This condition leads to LTBI. People with LTBI are not infectious and are asymptomatic due to a low bacillary load. When a person's immunity is severely compromised, as in HIV-positive individuals, TB bacilli multiply exponentially and TB develops, either by recently acquired TB infection or reactivation of LTBI. As mentioned above, the risk of disease after infection is 10 percent per year among people living with HIV without ART, compared to 10 percent per lifetime among those who are HIV negative. Evidence also shows that TB infection among HIV-infected patients progresses to TB more rapidly than those without HIV infection and patients are more likely to become infected after exposure to *M. tuberculosis*. This likelihood is supported by the occurrence of TB outbreaks among groups of HIV-positive patients after exposure to an infectious TB re-infection. This threat is particularly pronounced in settings where TB is highly endemic.

**Fomina L.V.**

## **CELLULAR AND HUMORAL IMMUNITY IN PATIENTS WITH ECZEMA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Dermatologic, Venerology and AIDS**

**Introduction.** Eczema is a chronic, recurrent disease with the acute inflammatory symptoms which are caused by serous inflammation of epidermis and cutis. On the different stages of studies on eczema the significance in etiology and pathogenesis of disease is given to the nervous system, endocrine and metabolic violations, infectious and allergic factors, genetic burden and immune insufficiency. Whereas a critical significance of these or those endogenous and exogenous influences remains debatable, and more often they have complex relations, it is accepted that eczema is a polyetiological disease. Presently allergic processes are interpreted as a pathological immunoreaction accompanied by damage and an inflammation of an organism. That is why a fundamental importance is given to different immune changes in pathogenesis of eczematous process. It has been established that in the patients with eczema dysgammaglobulinemia is expressed (the excess of IgG, IgE and deficiency of IgM), a number of active T- lymphocytes is reduced, the general quantity of T-cells gets low, correlation of helper and suppressor subpopulations is changed, as a



result the amount of B-lymphocytes increases. Immunopathology is the most expressed in patients, who are transmitters of isoantigen A, M, N and rhesus of D+. The weakness of immunity at the presence of infectious antigen irritants has manifestation as microorganisms and bacterial antigens with forming of chronic recurrent inflammation in epidermis and cutis. Forming of eczema on the basis of genetic bias creates reconditions for its inheritance in the next generations at the presence of gene of immune answer in the chromosomes. Thus a multifactorial inheritance with the remarkable expression and penetrance of genes takes place. Imbalance in the immune system with eczema is characterized by: a change of cellular and humoral immunity and nonspecific defense factors in patients (reduction of CD8 +, FI accompanied by increased CD4 +, CD4 + / CD8 +, CD22 +, IgA, CEC).

**Results.** Disgammaglobulinemiya accompanied by increased levels of IgA and IgG4 and IgM decline. Patients with microbial eczema revealed a significant increase in serum levels of IL-1B, IL-4, IL-2 reduction, compared with those in true eczema.

**Conclusion.** The immune status of patients is characterized by slowing reparative processes by enhancing cell-mediated immune response to increased levels of pro-inflammatory cytokine interferon-gamma (IFN-gamma) and imbalance opposition pools (IFN-gamma, IL-4).

**Halo Azad Khidwrbagi, Xelan Muhiadin, Al-Ketan Mutaz, Tkachenko S.  
PREVALENT OF USAGE BOTOX™ AND VOLUMETRIC FILLERS FOR  
COSMETIC PURPOSE**

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**Department of dermatology Venereology and medical Cosmetology**

**Introduction :** Usage of Botulin toxin and volumetric fillers to treat and removal of wrinkles is widely is use as „biological section“, produces a very efficient, safe and durable treatment of the dynamic per orbital wrinkles.

**Aim:** Indeed, those lines are usually treated with much more risks and less durability by procedures as face lifts and other surface medical treatments. In other hands, in this peiorbital area: If a loose of volume is existing, volumetric fillers, as fat grafting and other effective exogenous products, are the best approach.

**Methods and materials:** Botulinum Toxin A–Surgery combination: advantages/disadvantages: Laterally, in case of ptosis: the fronto-temporo-malaris lifting, under cold light control, remain the best procedure. In the glabella and crow's feet areas: the botulinum toxin injections seem to be the most effective treatment, being always done 3 weeks before, or minimum 3 months after the surgery procedure. Advantages: associated to surgery, the BTX injections produce a substant reduction of the operative time, follow-up and side effects risks. It is optimising the inadequate surgery results. No real disadvantages? In fact, this step by step procedure is a real advantage. Lipofilling–Surgery combination: advantages/disadvantages: Face lift alone, disadvantages: in case of volume loss associated or non associated to the ptosis of the tissues, the fat graft techniques allows a better periorbital and jugo-malar areas remodeling, and rejuvenation. Lipofilling alone, disadvantages: A better anatomical knowledge of the concerned lipoatrophy area and our technique improvement involving, have produced a much greater efficacy and durability of this process. In other hands, the recovery period is no less than 2 weeks. Anesthesia and operating room are necessary during the fat taking and injection, and the orbital and



glabellar lipofilling are difficult and risky. Because of all these data, this technic is more indicated for motivated and well prepared patients.

**Result:** For these reasons, the effective alternative technics are the exogenous fillers injections with safe, and durable products. Among the available one, the resorbable fillers as Hyaluronic Acid (Sub-Q), and Polylactic Acid (New fill), could be considered are one of the most safe, and effective. If a muscles, fat, and skin relapse is existing facelift and/or blepharoplasties stay the most available procedures.

**Conclusion:** Botulinum toxin injections and volumetric fillers are not coming at all in opposition with upper, mid, face lifts and blepharoplasties; indeed, they optimize and maintain those surgery results. These injections are a fundamental process in producing a long lasting result.

**Hvozdetska M.G., Zoc Y.V., Bondarenko A.V.**  
**MODERN APPROACHES TO MALARIA THERAPY**  
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**Department of Infectious diseases**

**Introduction:** More than 200 cases annually recently are recorded in Ukraine the probability of malaria importation dangerously increases. In 2013 recorded there are 7 imported cases of malaria<sup>4</sup> of them among foreign students from Nigeria, Angola and Ghana, and 3 – among Kharkiv residents, who worked in Guinea and Congo. Therefore the problem of the malaria treatment and prevention is relevant, in our country especially of multidrug resistant forms. The plasmodium strains have different patterns of drug resistance in different geographical regions. Along with widespread chloroquine resistant strains and strains resistant to sulfadoxine-pyrimethamine, increases the number of identified strains, resistant to other drugs: amodiaquine, mefloquine, halofantrine, quinine etc.

**Aim:** systematization and analysis of information about Plasmodium spp. resistance to anti-malarial medicines and modern approaches to etiological treatment of malaria.

**Materials and methods:** Information Resource Database and Search Tools: Google, Cochrane Library, Scirus, Springer, Medline, Embase, Web of Science.

**Results:** Once the diagnosis of malaria has been made, appropriate anti-malarial treatment must be initiated immediately. Treatment should be guided by four main factors: 1) the infecting Plasmodium species; 2) the clinical status of the patient; 3) the drug susceptibility of the infecting parasites as determined by the geographic area where the infection was acquired and 4) the previous use of anti-malarial medicines. Only 5 anti-malarial drugs are permitted by the Ukrainian Ministry of Public Health: chloroquine (Delagil), mefloquine (Lariam), hydroxychloroquine (Plaquenil), sulfadoxine-pyrimethamine (Fansidar), quinine sulfate. Considering CDC and WHO recommendations and option of anti-malarial drugs, that approved the Ukrainian Ministry of Public Health, we can use the next scheme for malaria therapy: For *P. falciparum*, *P. malariae* and *P. knowlesi* infections acquired in areas without chloroquine-resistant strains oral chloroquine can be used at the dose 600 mg base, followed by 300 mg base at 6, 24, and 48 hours after the initial dose. Alternatively, hydroxychloroquine may be used at a dose of 620 mg base given initially, followed by 310 mg base at 6, 24, and 48 hours after the initial dose. For chloroquine resistance *P. falciparum* infections quinine sulfate with doxycycline or



tetracycline, or clindamycin may be administered. Quinine treatment should be continuing for 3-7 days. Mefloquine we recommend only when the other options cannot be used, because of its potentially severe neuropsychiatric reactions. *P. vivax* and *P. ovale* infections also should be treated with chloroquine or quinine sulfate. In addition to requiring blood stage treatment, infections with *P. vivax* and *P. ovale* can relapse due to hypnozoites that remain dormant in the liver. To eradicate the hypnozoites, patients should be treated with a 14-day course of primaquine phosphate at the dose of 30 mg daily. For pregnant women diagnosed with uncomplicated malaria caused by *P. malariae*, *P. vivax*, *P. ovale*, or chloroquine-sensitive *P. falciparum* infection, prompt treatment with chloroquine (treatment schedule as with non-pregnant adult patients) is recommended. Alternatively, hydroxychloroquine may be given instead. For pregnant women diagnosed with uncomplicated malaria caused by chloroquine-resistant *P. falciparum* infection, prompt treatment with either mefloquine or a combination of quinine sulfate and clindamycin is recommended. Doxycycline and tetracycline are generally not indicated for use in pregnant women. Patients who are considered to have manifestations of more severe disease should be treated aggressively with parenteral anti-malarial therapy regardless of the species of malaria seen on the blood smear.

**Conclusions:** Thus we can conclude that the migration taking place in the modern world, as well as the increase of resistance *Plasmodium* spp require licensing and the emergence in Ukraine an effective anti-malarial drugs for disease prevention and for its treatment. Furthermore it is appropriate to create specialized centers of tropical medicine with the necessary range of drugs for adequately and timely response to malaria cases.

**Iurko K.V., Khidwihagi Halo A., Bondarenko A.V., Solomennyk G.O., Mohylenets O.I., Kust D.A.**

### **EARLY DETECTION OF HIV-INFECTION IN PATIENTS WITH HIV-INDICATOR DISEASES IN KHARKIV REGION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of infectious diseases**

**Scientific adviser: professor V.M. Kozko**

**Introduction.** Pandemia of HIV-infection/AIDS is one of the global issues of our time and an important problem of global health. To study the prevalence and early diagnosis of HIV infection, we have selected the following pathologies: patients with parenteral viral hepatitis (VH); infectious mononucleosis, a condition accompanied by leukopenia or thrombocytopenia, seborrheic dermatitis, undifferentiated exanthema, sexually transmitted diseases (STDs).

**Aim** – early diagnosis of HIV infection in the Kharkiv region.

**Materials and methods.** During the period from 2007 to 2013 695 patients with parenteral VH were examined. Diagnosis of HIV - infection was set to 23 patients. Most patients were male - 416 people (59,8 %). The average age was  $28,2 \pm 4,5$  years. The fact of active injecting drug use was established to 74 (10,6%) patients, and to 87 (12,5%) - injecting drug use has been in past medical history.

**Results.** When screening for HIV – infection of 319 patients with infectious mononucleosis or mononucleosis-like condition (generalized lymphadenopathy syndrome) positive HIV-status was set to 22 patients (6,9%). Most patients were male 158 (49,5%), average age -  $18,7 \pm 3,1$  years. HIV infection was diagnosed to 7 patients (3,1%) with skin



lesions ( seborrheic dermatitis or undifferentiated exanthema) and STDs. When examining patients with leukopenia, thrombocytopenia and anemia HIV infection was established to 2 (3,7 %) patients.

**Conclusion.** Analyzing the results of the survey of 1242 persons with HIV indicator diseases HIV infection was established to 52 (4,2%) patients. At an early stage ( CD4 + cells above  $350 \text{ klt/mm}^3$ ) HIV diagnosis was established to 61,5% of patients below  $200 \text{ klt/mm}^3$  – 13,5%. Thus, screening groups of patients, belonging to the clinical risk groups, allows to establish the diagnosis in the early stages to the third part of patients.

**Khristenko N.**

## **CLINICAL FEATURES OF MICROBAL ECZEMA IN AREA OF LOWER LIMBS**

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**Department of Dermatology, Venereology and Medical Cosmetology),**

**Introduction.** Eczema makes from 18% till 40% in the structure of dermatological morbidity and among the variety of clinical forms of disease a microbial eczema makes from 12% till 27%. Therefore the problem of study of nosotropic mechanisms of development and flow of dermatosis is actual. Importance of the studied problem is determined by the height of morbidity and by the features of modern flow of microbial eczema that has a tendency to more heavy flow, accompanied frequent, long relapses, considerable distribution of pathological process on a skin, and also characterized by stability to the generally accepted methods of treatment.

**Aim.** Studying clinical features of microbial eczema in area of lower limbs.

**Materials and methods.** Group of supervision is 190 people aged from 18 till 82 years, from that 50 persons were microbial eczema, 40 persons were paratraumatic eczema, 50 persons were varicetic eczema and 50 persons were micotic eczema. Patients with a microbial eczema had in anamnesis professional harmfulness (a contact with lubricating materials). Previous diseases were scab and pyoderma. Duration of dermatosis varied from 7 days to 3 year. At paratraumatic eczema 21 man had trauma of shins bones; 2 persons had burns of 2 - 3 degrees, trauma of skin - at 9 persons, bites of dog - at 3 persons. From patients with varicetic eczema 46 persons had in anamnesis breaks of shins bones or operative treatment of varicetic illness in anamnesis. Development of micotic eczema passed on a background mycosis feet at the action of external factors.

**Results.** Distributions of eczematous process outside lower limbs looked at the microbial eczema at 18% patients, paratraumatic eczema - at 17% patients, varicetic eczema – at 2% patients, micotic eczema - at 24% patients. Mycosis feet combined with a microbial eczema at 12% patients, with a paratraumatic eczema at 10% patients, with a varicetic eczema at 56% patients. Most frequent complications were erysipelatic inflammation and ulcers of shins. 6% patients with microbial eczema had erysipelatic inflammation, 3% patients – with paratraumatic eczema, 8% patients – with varicetic eczema. 4% patients with microbial eczema had ulcers of shins, 3% patients – with paratraumatic eczema, 12% patients – with varicetic eczema

**Conclusions.** Finally, the microbial eczema of lower limbs develops mainly at the persons of mature and summer age on a background of trauma of the skins, bones of shins, pathology of superficial veins and mycosis feet. The most frequent complications are ulcers of shins, erysipelatic inflammation and distribution of process on other areas of skin.



**Kirsanova T., Strokach V., Tuchina O.**  
**VACCINATION AGAINST ROTAVIRUS OF INFANTS IN UKRAINE. IS IT  
POSSIBLE?**

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**Department of children's infectious diseases**

**Introduction.** Rotavirus is one of the leading causes of a severe diarrhea leading to dehydration in infants. Most children are infected with these highly contagious viruses before they reach the age of 5 (according to numerous European studies to 80-85% of children of five years of life in blood has IgG to rotaviruses that indicates previously adjourned at least one episode of rotaviral gastroenteritis). Rotavirus kills over 600000 children yearly, mostly in developing countries. Rotavirus in EU its causes of 2,8 million cases of gastroenteritis with 87000 hospitalizations. In US rotaviruses cause 31-50 % of diarrhea in children under 5 years, in Europe - 50-65 %, and their share in the winter rises to 80%. Uptake to the doctor about rotaviral gastroenteritis can reach 40-50 per 1000 children under 5 years of life, negotiability in emergency departments of hospitals - 15-26 in 1000, hospitalizations - 3-12 by 1000. Among the hospitalized children with diarrhea rotaviral disease in the season 70-80%. Among all causes of nosocomial diarrhea viruses constitute 91-94%, and among them the proportion of rotavirus, according to various sources, - 31-87%. In European countries, rotaviral gastroenterites are infected with 5-27 % of all hospitalized infants.

**Results.** Nowadays, vaccines are based on obtaining live attenuated rotaviral strains of human and/or animal origin, which proliferate in the human intestine. On the international market, there are two vaccines: monovalent (RV1) ("RotaRix" GlaxoSmithKline, England) and pentavalent (RV5) ("RotaTek" Merck Sharp&Dohme, Netherlands). RV1 is derived from human strain, whereas the RV5 contains 5 recombinant viruses derived from the human and bovine strains. The first dose of rotaviral vaccine must be administered as soon as possible after an infant reaches 6 weeks of age. RV1 should be administered twice during the dispensing of DPT1 (vaccine against diphtheria, pertussis and tetanus) and DPT2 while the RV5 must be administered three times during the provision of DPT1, DPT2 and DPT3. Both vaccines are administered orally at intervals of at least 4 weeks between doses. Immunizations with rotaviral vaccine in children over the age of 2 years are not considered unreasonable. Except for the very small risk of intussusception, existing rotavirus vaccines are safe and tolerant. The main contraindications for vaccination against rotavirus infection are a severe allergic reaction to a previous dose and severe immunodeficiency. Warnings for the use of rotavirus vaccines are intussusception or intestinal malformations in anamnesis, chronic gastrointestinal diseases or acute severe disease. It is necessary to postpone the vaccination when a child has acute gastroenteritis or a fever with the presence of a severe or a moderate disease. RV1 causes seroconversion in 80% and more of vaccinees, the allocation of the vaccine virus in the stool a maximum of 2 week and ends quickly (to the 30th day of the virus was isolated only 10-20 % of vaccinees). The protective effect is already apparent after 1st dose (in general, type-specific), after the 2nd dose - heterotypic. Efficiency RV1 for 2 seasons for more severe rotaviral infection was 83%, all forms - 60-70%; (88-92% against diseases caused by serotypes of G1, G3 and G9, 72% - serotype G2P). The rate of severe gastroenteritis from any cause decreased by 40%, which may indicate that the inhibitory effect of the vaccine virus to replicate other enteric viruses. In Europe RV1 showed 96-100% efficacy in cases requiring hospitalization within 1 year, during the 2nd year - 83%. RV5 causes more than 3-fold increase in antibody titer in more



than 95% of vaccinees, reduces the risk of rotavirus gastroenteritis in the 1st year to 74%, and severe rotaviral gastroenteritis in the 1st year to 98%, in the 2nd - on 88%. Decreased risk of hospitalization by 96%, going to the emergency - 94%, to the doctor - 86%, the number of disability days - by 87%. The effect is manifested RV5 against serotypes G1 (95%), G3 (93%), G4 (89%) and G9 (100%). Preliminary result of the mass use of RV5 in the US showed that in 2007-2008 rotavirus activity began at 2-4 months later than before vaccination, and incidence was significantly lower (17,8%) than in the years before vaccination (30,6-45,5%).

**Conclusion.** Thus, rotaviral vaccines should be included in national immunization programs in Ukraine.

**Kirsanova T., Tuchina O., Strokach V.**

**THE IMPROVEMENT OF A DIFFERENTIATED APPROACH TO THERAPY OF  
RECURRENT SIALADENITIS IN CHILDREN**

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**Department of children's infectious diseases**

**Introduction:** The percentage of false diagnoses of sialadenitis with irrationally assigned therapy remains high at 77.8% level. This study purpose was to improve the treatment of recurrent chronic sialadenitis in children based on the determination of viral load in disease dynamics.

**Material and methods:** We observed 38 children from 7 to 18 years old, who had unilateral (22 children) or bilateral (16 children) herpetic sialadenitis. The diagnosis was made based on the results of polymerase chain reaction (PCR) to quantitatively determine virus copies as well as enzyme-linked immunosorbent assay (ELISA). Disease relapses had been registered 3-5 times over the last 2-4 years in all patients' histories.

**Results:** A disease etiological factor in 18 children (47.4%) was Epstein-Barr virus and cytomegalovirus in 20 (52.6 %). When conducting the ELISA in 22 children (57.9 %), the increase in IgG and IgM antibody titer were determined. In 11 children (28.9%), there was an increase only in IgM antibody titer and in 5 children a rise in IgG antibody titer, which did not always allow to determine a treatment strategy. The quantitative PCR results allowed to distinguish children with low (44.4%), high (38.8%) and very high viral load (16.8%).

**Conclusions:** It was found that low virus concentration is a favorable factor during therapy and did not require immunomodulatory drugs usage, while high and very high—unfavorable, which dictates the need for immune correction. Besides, viral load determination in the disease dynamics allows to control therapy effectiveness and to determine the observation terms of convalescents herpetic sialadenitis.

**SokhanA.V., PavlovaO., IsaevaA., ZocY., KalugniyV.A., SolomennikA.O., GoydenkoA.A.,  
MarkushL.I., PavlovV.V., KononenkoA.E., GavrilovA.V.**

**ANALYSIS OF CLINICAL AND LABORATORY PARAMETERS AND EFFICIENTLY  
OF TREATMENT OF ACUTE PURULENT MENINGITIS IN KHARKOV'S  
REGIONAL CLINICAL HOSPITAL OF INFECTIOUS DISEASES IN 2011-2013**

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**Department of Infectious Diseases**

**Introduction:** Currently, infectious diseases of the central nervous system are some of the serious infectious diseases associated with high mortality, disability patients. According



to the World Health Organization in the world mortality from CNS infectious diseases is 20%. Nowadays admission and treatment of patients with acute neuroinfections in Kharkov is possible only in Regional Clinical Hospital of Infectious Diseases.

**Aim:** Analyze the etiology of infectious diseases of the CNS, the clinical picture and laboratory examination data, depending on the severity of the disease.

**Materials and methods:** Since 2011 to 2013, we observed 74 patients with acute purulent meningitis. Patients underwent conventional laboratory and research methods investigations of blood and cerebrospinal fluid.

**Results:** Severe disease were in 55 patients (74%), moderate in 19 patients (26%). Lethal outcome were in 11 patients (14.9%). Average age in the group with moderate disease was  $46 \pm 12$ , with severe disease -  $52 \pm 15$ . The average age of lethal outcomes was 63 years. The etiology of the disease was determined in only 28 % of cases. Most often from the cerebrospinal fluid (CSF) of patients were isolated Str. Pneumonia, St. Epidermidis. N. meningitidis was isolated only in 4 patients (5 %), two of them died. High mortality rate and severity is typical (14.9%). The severity of disease was due to the development of cerebral edema (100% of patients with severe disease), not as often with infectious-toxic shock, cerebral thrombosis, ventriculitis. Purulent meningitis accompanied by pneumonia in 21 % of patients. Pneumonia was observed in the group with severe disease in 29% of cases, in moderate in 16%. Antibiotics ceftriaxone and levofloxacin were used in 75% of cases.

**Conclusions:** In Kharkov and region noted sporadic incidence of purulent meningitis, with a low incidence of generalized meningococcal infection. Currently, using a combination of ceftriaxone and levofloxacin in the treatment of purulent meningitis is effective and reduces mortality to 15%. Significant positive dynamics of both clinical and laboratory parameters were at 5-7 days of treatment in most patients. Elderly patients, impairment of consciousness at the level of coma after 3-4 days of treatment, the presence of comorbidity were unfavorable factors.

**Kucherenko O., Olkhovskiy E.**

## **IMMUNOLOGICAL MARKERS IN CHILDREN WITH CHLAMYDIA PNEUMONIA**

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**Department of Children Infectious Disease**

**Introduction.** Infectious diseases caused by Chlamydia are widespread, especially Chlamydia pneumonia. Pathogenic mechanisms, immunogenesis, diagnostics, and treatment of Chlamydia pneumonia are not well-known and debatable.

**Aim** - to study the features of children immune system in Chlamydia pneumonia.

**Materials and methods.** Clinical laboratory examination of 45 3 months - 3 years old patients with Chlamydia pneumonia and 21 healthy children at the same age (control group) has been completed. We used clinical epidemiological information, results of the X-ray of lungs, markers of Chlamydia infection by ELISA and PCR in the sputum and in the blood to verify diagnosis. Levels of leukocytes, lymphocytes ( $CD_3$   $CD_4$   $CD_8$   $CD_{20}$ ), and immunoglobulins (IgA, IgM, IgG) were determined.

**Results.** There are changes of levels of immune cells in patients with Chlamydia pneumonia in comparison with control group. We detected decrease level of T-cells. Level of B-cells wasn't changed. Quantity of leukocytes was higher in patients with Chlamydia



pneumonia than in patients of control group. Immunoglobulins IgM was increased significantly, but immunoglobulins IgG and IgA were increased unreliably.

**Conclusions.** Our investigation determined that the immunological indexes were changed in patients with Chlamydia pneumonia. We suspect that these immunological abnormalities are one of the reasons of Chlamydia pneumonia prolonged course.

**Lavrov P., Choporova A.**

**CLINICAL ASPECTS OF TUBERCULOSIS AMONG HIV- POSITIVE INDIVIDUALS  
Kharkiv National Medical University, Kharkiv, Ukraine**

**Introduction.** Tuberculosis (TB) and HIV infection are closely connected nowadays and aggravate each other. In this “relationship” TB can be a primary infection or occur secondarily. Immunosuppression caused by HIV supports both endogenous reactivation of latent tuberculosis infection and exogenous reinfection, in second case development of drug-resistance and mycobacterioses caused by atypical mycobacteria are noticed more often. Quick and timely TB detection among these patients is very difficult and the clinical course of this opportunistic infection is more severe.

**Aim.** To study clinicoradiologic and laboratory manifestation of HIV-related TB in different stages of HIV infection.

**Materials and methods.** Two in-patients of Kharkiv regional TB dispensary No. 1 diagnosed with tuberculosis/HIV co-infection were observed. The study took place in January 2014.

**Results.** A patient K., 32 years old, complained of fever (38°C) for last 4 weeks, cough with little amount of mucous sputum and throat pain. Later heaviness and discomfort in the right upper quadrant appeared, also body weight loss from 70 to 62 kg was noticed. After examination patient was diagnosed with viral hepatitis C, gallbladder empyema, mesenteric lymphadenopathy, ascites. Cholecystectomy was performed. After pathohistological examination of mesenteric lymph node tissue extrapulmonary tuberculosis of mesenteric lymph nodes was diagnosed. On a chest X-ray lung abnormalities were not found. Because of hepatomegaly and ascites without signs of portal hypertension, mesenteric lymphadenopathy, underweight more than 10 % and fever of unknown origin HIV-associated tuberculosis was suspected. A patient’s immunological status: the rate of CD<sub>4</sub>+T cells was 151/mm<sup>3</sup>, the rate of CD<sub>8</sub>+T cells was 187/mm<sup>3</sup>, CD<sub>4</sub>/CD<sub>8</sub> = 0,92. In spite of antimycobacterial and antiretroviral therapy after operation patient’s condition was getting worse and he died. Autopsy results: generalized tuberculosis with caseous affection of mesenteric lymph nodes, miliary tuberculosis of the peritoneum, intestine, kidneys, meninges with low granulomatous reaction or without it. Decompensated hepatic cirrhosis. The Hain-test of autopsy material helped to detect atypical mycobacteria, m.avium - special sign of TB in the late stage of HIV-infection. A patient B., 46 years old, complained of right sided chest pain, increased body temperature - 37,7°C, cough with mucous sputum and labored breathing during physical exertion. Chest X-ray showed the inhomogenous pulmonary consolidation with cavity of destruction in right upper lobe. After bacterioscopy and sputum culture typical mycobacteria tuberculosis were found. Patient was diagnosed with infiltrative pulmonary tuberculosis of right upper lobe. The rate of CD<sub>4</sub>+T cells was 475/mm<sup>3</sup>. Anti-HIV immunoglobulins were found. In process of treatment (in the early stage of HIV-infection) patient’s condition got better, bacterioexcretion stopped and



consolidation resolved. There is a probability that contamination of patient with m. tuberculosis took place before HIV-infection.

**Conclusions.** These two clinical cases of TB/HIV co-infection show the difference between clinical courses of TB depending on immunosuppression level. If TB is connected with HIV-infection in the late stage, the clinical manifestation is atypical or absent and the diagnosis is difficult because of multi-organ pathology. In this case TB is primarily caused by atypical drug-resistant mycobacteria. If TB is connected with HIV-infection in the early stage the symptoms are typical, lungs are usually affected and it is confirmed by X-ray, and infection is usually caused by m. tuberculosis.

**Levashova A., Choporova A.**

### **MYCOBACTERIOSIS IN PATIENTS WITH HIV-INFECTION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Phthisiology and Pulmonology**

**Introduction.** Mycobacterium avium complex (MAC) is a group of bacteria that are related to Mycobacterium tuberculosis. These germs are very common in food, water, and soil. Almost everyone has them in their bodies. If you have a strong immune system, they don't cause problems. But they can cause serious illness in people with human immunodeficiency virus. MAC can infect one part of the body, such as lungs, bones, or intestines. This is called localized infection. It can spread and cause disease throughout body. This is called disseminated infection, which principally develops in HIV-positive people. Among HIV-infected patients with disseminated MAC, more than 90% of cases are caused by M. avium. In the pre-HAART era, disseminated MAC infection occurred in 15 to 40% of HIV-infected patients, but then dramatically declined after the introduction and widespread use of effective antiretroviral therapy. Nevertheless, MAC remains one of the most common and important opportunistic infections encountered in HIV-infected patients with advanced immunosuppression, mainly occurring in HIV-infected persons who do not know their HIV diagnosis, do not access health care, or choose to not take antiretroviral therapy. A recent american study found that MAC ranked 4th among opportunistic infections in HIV-infected patients, with a rate of 2.5 per 1000 patient years between 2003 to 2007.

**Purpose.** To study the main features of mycobacteriosis in patients with HIV infection.

**Materials and methods.** Clinical cases of mycobacteriosis in patients of Regional clinical antituberculosis dispensary #1 have been studied and the main features of mycobacteriosis in patients with HIV-infection were found.

**Results of the study.** Patients with disseminated MAC typically have CD4 counts less than 50 cells/mm<sup>3</sup> and present with non-specific clinical features, including fatigue, fever, weight loss, diarrhea, and abdominal pain. Pulmonary involvement is similar to tuberculosis, while diarrhea and abdominal pain are associated with gastrointestinal involvement. Less frequently, patients develop diarrhea or symptoms of extrahepatic obstruction. Common abnormal laboratory studies include anemia, increased alkaline phosphatase (often with normal bilirubin, normal hepatic transaminases levels), and increased serum lactate dehydrogenase levels. The anemia associated with disseminated MAC predominantly results from a failure in the maturation of red blood cell precursors, presumably mediated by a soluble factor in the serum that suppresses erythroid progenitor



cells. Other factors may play a role in the MAC-associated anemia. Abdominal CT scan abnormalities include multiple large retroperitoneal and mesenteric lymph nodes, hepatomegaly, splenomegaly, and thickened small bowel wall. Although disseminated MAC is rarely a direct cause of death, it is an independent predictor of increased mortality. A normal abdominal CT scan does not rule out the diagnosis of disseminated MAC.

A clinical case: 32-year-old man presents with a 3-week history of fever, fatigue, and abdominal pain. The patient was diagnosed with HIV 7 years prior and most recently had a CD4 count of 8 cells/mm<sup>3</sup> and HIV RNA of 88,000 copies/ml while taking a regimen of abacavir (Ziagen) plus didanosine (Videx EC) plus lopinavir-ritonavir (Kaletra). The patient was supposed to be taking once weekly azithromycin (Zithromax) for prevention of disseminated *Mycobacterium avium* complex (MAC) infection, but discontinued several months prior because of gastrointestinal side effects. The physical examination shows a very thin male with a temperature of 39.2°C and palpable hepatosplenomegaly. Abnormal laboratory studies include a hematocrit of 24% and an alkaline phosphatase of 310 U/L. An abdominal CT scan shows hepatosplenomegaly and multiple large retroperitoneal and mesenteric lymph nodes. Based on the overall presentation, the patient's medical provider concludes the most likely diagnosis is disseminated MAC infection.

**Conclusion.** Mycobacteriosis in patients with HIV-infection principally manifests with fever, sweats, weight loss, and anemia. Mycobacteriosis in our country is a sporadic disease, but it has huge clinical importance because of severe course and difficulties of treatment.

**Mayorova M. V., Adamsky M. O.**

**ANALYSIS OF THE EPIDEMIOLOGICAL SITUATION REGARDING CO-  
INFECTION TB / HIV IN THE KHARKIV REGION IN THE PAST FIVE YEARS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Scientific leader – prof, DM, O. S. Shevchenko**

**Introduction:** Exacerbation of worldwide epidemic situation with tuberculosis experts associates with the rapid growth of the scale of the HIV infection. Experts stress that HIV will lead to a further increase in the incidence of resistant forms of TB. Cases of co-infection of HIV / TB are detected late due to atypical and malignant course, which results in fatal consequences within 1-3 years.

**Aim:** Examination of the dynamics of indicators of infecting population with HIV, TB and HIV / TB in the Kharkiv region for five years, over the period of stabilization of the epidemic situation of tuberculosis.

**Materials and methods:** Examination of HIV-associated tuberculosis patients was conducted under the order № 276 of 28.05.2008 "On the approval of the clinical protocol of care for patients with polytopia." A retrospective study on patient history in antitubercular clinic number 1 in Kharkiv. Diagnosis of MBT was carried out by flotation and culture method, including the MBT drug sensitivity test to first-line and second-line antitubercular drugs, according to the instructions on the bacteriological diagnosis, regulated by Order of Ministry of Health № 45 of 06.02.2002.

**Results:** During the 2007-2011 period the morbidity of tuberculosis was reduced in Ukraine and the Kharkiv region. However, the dynamics of HIV infection and TB / HIV co-infection has grown. The mortality for this period from TB reduced, deaths from AIDS



increased, followed by growth mortality from TB / HIV co-infection. Analysis on the epidemic situation of HIV-AIDS in Ukraine indicates that the infection has challenged health system. The proportion of IDUs among new HIV infections is quite big, the proportion of sexual transmission among new HIV infections has tendency to increasing, Also the number of HIV-infected persons identified due to the manifestation of clinical signs of the disease growth. The most common AIDS-indicator disease in Ukraine still remains tuberculosis. Mostly HIV infection and tuberculosis were detected simultaneously, also the development of tuberculosis determined on a background HIV is often. Males dominated; age of the patients is closely correlated with the age groups of patients with tuberculosis. Alcohol abuse found in 17.4% of cases, smoking more than 10 cigarettes per day – in 35.3% of cases, and smoking and alcohol abuse – in 20.6% of cases. Almost the half of HIV / TB cases were registered when applying at preventive examinations. In terms of the localization process, dominated pulmonary form of TB, among extrapulmonary forms - intrathoracic tuberculosis and tuberculosis of peripheral lymph nodes. Bacteria defined in 63.9% of cases and mostly confirmed by the culture method. Drug resistance to first-line drugs was in the half of cases. Most frequent were strains resistant to 4 drugs (HRES). Total frequency resistance of MBT was highest to streptomycin, ethambutol and kanamycin. Among MRTB-registered patients death was recorded in 51.3% of cases.

**Conclusions:** The situation with co-infection of HIV / TB in Kharkiv region worsens from year to year. Tuberculosis on the background of HIV is often evolving passively over 2-6 years after HIV infection. The most common form is infiltrative tuberculosis followed by destruction and bacterioexcretion. Among patients with co-infection, the most common are strains of *Mycobacterium tuberculosis* with HRES-resistance profile – both in intact sensitivity and in the presence of additional resistance to different amounts of second-line antitubercular drugs. The least common are strains of *Mycobacterium tuberculosis* with HRE-resistance profile. Tuberculosis is the major secondary disease in HIV infection and the main cause of death in AIDS stage, and it requires joint and coordinated efforts of TB services and services for AIDS prevention and timely diagnosis of tuberculosis in HIV-infected individuals.

**Minakova S.A., Solomennik A.O., Bondar A.E., Mogilenets O.Ye., Yurko K.V.,  
Vinokourova O.M.**

**IDENTIFICATION OF APOLIPOPROTEIN A1 IN THE BLOOD SERUM OF  
PATIENTS WITH CHRONIC HEPATITIS C**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Infectious Diseases**

**Academic Advisor – professor V.M. Kozko**

**Aim** - to study the content of protein apolipoprotein A1 (apoA1) in the blood serum of patients with chronic hepatitis C (CHC), depending on the biochemical activity of the process, the degree of phlogistic and necrotic activity, stages of fibrosis and steatosis.

**Material and methods.** 22 patients with CHC have been monitored. Among them there were: men - 14 (63.6 %), women - 8 (36.7%) . The average age of the patients was  $41,23 \pm 2,68$  years. For all the patients there was made an assessment of the activity of the process, the stage of fibrosis and the degree of steatosis according to the system FibroMax, was indentified the content of apoA1 in the blood serum, ALT and AST activity . Statistical



processing was performed using Student-t criterion for small samples, and the correlation coefficient  $r$ .

**Results.** ALT activity in the blood serum averaged  $71,52 \pm 9,95$  IU / l, AST -  $49,2 \pm 7,47$  IU / l. Phlogistic and necrotic changes in the liver were absent in 6 (27.3%) patients, the minimum level of activity was detected in 5 (22.7%) patients, moderate - in 3 (13.6%), expressed - in 8 (36.4%). Fibrosis was absent in 7 (31.8%) patients, slight fibrosis was diagnosed in 4 (18.2%), moderate - in 4 (18.2%), frank - in 3 (13.6%), cirrhosis - in 4 (18.2%) patients. The degree of severity of hepatic steatosis in patients studied ranged from 0 to 4 points. ApoA1 content in the blood serum of all patients did not go beyond the normal range (1,08-2,25 g / l), reaching an average of  $1,5 \pm 0,06$  g / l, which was not different from control ( $p > 0,05$ ). No relationship revealed between this index and ALT activity ( $r = -0,05$ ;  $p > 0,05$ ), AST ( $r = 0,27$ ;  $p > 0,05$ ) in the blood serum as well as with the degree of phlogistic and necrotic activity ( $r = -0,16$ ;  $p > 0,05$ ) CHC, stage of fibrosis ( $r = -0,28$ ;  $p > 0,05$ ) degree of liver steatosis ( $r = 0,11$ ;  $p > 0,05$ ) in the examined patients based on the results FibroMax.

**Conclusions.** Identification of protein apolipoprotein A1 content in the blood serum does not allow us to evaluate the condition of functional and morphological changes in the liver in patients with CHC.

**Mohylenets O.I., Bondarenko A.V., Solomennyk G.O., Iurko K.V., Zots Ya.V.,  
Vinokurova O.M., Khristenko N.Ye.**

### **INCIDENCE OF CHILDHOOD DROPLET INFECTIONS IN ADULTS IN KHARKIV REGION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of infectious diseases**

**Scientific adviser: professor V.M. Kozko**

**Introduction.** Childhood droplet infections are one of the important problems of health care, not only in developing countries but also in some developed countries. Annually in the world more than 30 million cases and 1 million deaths of measles, rubella, mumps and its complications are registered, not only among children but also among adults. Many factors contribute to the spreading of the disease: aerosol mechanism of transmission, high susceptibility of the humans to these infections, tendency to epidemic spreading, especially in regions with low social and sanitary level. Low social and hygienic living conditions, crowding of people in urban areas, sometimes lack of proper vaccination facilitate development of childhood droplet infections among adults in Ukraine.

**Aim** – to evaluate the incidence of childhood droplet infections in adults in the Kharkiv region.

**Materials and methods.** The analysis of case histories of patients who were hospitalized in Kharkiv regional hospital of infectious diseases in the period from December 2012 till December 2013 was done.

**Results.** During the period from December 2012 to December 2013 in Kharkiv regional hospital of infectious diseases were 190 patients with childhood droplet infections. From them 127 were men (66,8%) and 63 – women (33,2%). The chickenpox prevailed in the morbidity structure – 146 cases (76,8%). It was also registered 29 cases of rubella (15,3%), 10 cases of measles (5,3%), 3 cases of mumps (1,6%) and 2 cases of scarlet fever



(1,0% ). Childhood droplet infections were registered during all year. The highest incidence was registered in May – 40 (21%) cases. Among patients prevailed students – 117 persons (61,6%). The highest number of patients were in aged of 18-29 years – 175 patients (92,1%); 12 patients (6,3% ) belonged to the age group of 30-39 years, and only 3 patients were older than 40 years.

**Conclusions.** 1. In the period from December 2012 till December 2013 chickenpox (76,8%) and rubella (15,3%) dominated in the morbidity structure of childhood droplet infections in Kharkiv region. 2. Males of age 18-29 years prevailed among the patients.

**Movsesian A., Bezyazichna N., Solomenic N., Bondar A., Korzh E., Vaniyants A.**  
**THE ANALYSIS OF MEDICAL WORKERS CONTAMINATION WITH**  
**HEPATITIS C ACCORDING TO THE KHARKIV REGIONAL HEPATOLOGY**  
**CENTER**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Infectious Diseases**

**Introduction.** Due to the widespread prevalence of viral hepatitis and their high sickness rate they are a serious medical and social problem for world healthcare. According to WHO, one third of the world population is infected with various types of hepatotropic viruses. There are above 70% of all liver diseases that caused by chronic hepatitis C (CHC). HCV is an etiological factor in 40% cases of liver cirrhosis and in 60-70% of hepatocellular carcinoma.

**Aim.** It is known that medical staff (MS) is one of the risk group to be infected with HCV. Thereby, the purpose of our research is to analyze the incidence of MS among HCV patients according to the data of Kharkiv Regional Hepatology Center.

**Materials and methods.** We have observed 2719 patients with CHC. Diagnosis was based on standard clinical, laboratory and instrumental criteria. Etiology of the disease was confirmed by the identification of specific markers by ELISA, as well as the detection of HCV RNA in blood serum by PCR. Statistical analysis was performed by using Pearson goodness of fit  $\chi^2$ .

**Results.** Among the observed population we revealed 192 MS diagnosed with chronic hepatitis C (7.06 %). Their average age was  $41,09 \pm 0,85$  years. Among MS diagnosed with chronic hepatitis C there were 166 (86.46 %) women, and 26 (13.54%) man. MS was divided by post and specialty as follows: Nurses -137 ( 71.35 % ) , paramedics - 9 ( 4.69 % ) , doctors - 46 ( 23.96 % ) , among them physicians - 10 ( 21.73 % ) , laboratory assistants - 9 ( 19.56 % ) , anesthesiologists - 4 ( 8.7% ) , TB specialists - 4 ( 8.7% ) , dentists - 4 ( 8.7% ) , gynecologists - 4 ( 8.7% ) , pediatricians - 4 ( 8.7% ) , surgeons - 3 ( 6.52 % ) , epidemiologists - 3 ( 6.52 % ) , interns - 1 ( 2.17 % ) .

**Conclusions.** Among all patients with CHC who were registered in Kharkiv Regional Hepatology Center, 6.57 % were MS. Moreover, among the MS CHC appeared more frequently than CHB ( $p < 0.01$ ), while the share of MS among all patients with HCB was significantly lower than that among all patients with chronic virus hepatitis ( $p < 0.01$ ). Draws also attention the sex structure of patients with CHC among MS: there was a significant predominance of women over men, in comparison with the total sample ( $p < 0.01$ ). At the same time men were more frequent among MS with CHB, than in the MS with CHC patients ( $p < 0.02$ ) . In the structure of MS with chronic virus hepatitis, nursing staff



prevailed much more over doctors ( $p < 0.01$ ). Ratio of surgeons and therapists with chronic virus hepatitis was 1:1.

**Omowole Oladipupo, Zolataya V.**

**CLINICAL FEATURES OF EISENMENGER SYNDROME**

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**Department Of Internal Medicine**

**Introduction.** Eisenmenger syndrome is a cyanotic heart defect characterized by a long-standing intracardiac shunt that eventually reverses to a right-to-left shunt. This syndrome is less frequent today because of medical screening with echocardiography early in life. Eisenmenger's syndrome specifically refers to the combination of a cardiac shunt (systemic-to-pulmonary), significant enough to cause cyanosis and, over time, pulmonary hypertension. Eisenmenger's syndrome can cause serious complications in pregnancy, though successful delivery has been reported. Maternal mortality ranges from 30% to 60%, and may be attributed to syncope, thromboembolism, hypovolemia, hemoptysis or preeclampsia. Most deaths occur either during delivery or within the first weeks after.<sup>1</sup> Pregnant women with Eisenmenger syndrome ["ES"] should be hospitalized after the 20th week of pregnancy - or earlier if clinical deterioration occurs. Symptoms related specifically to pulmonary hypertension result from the inability to increase pulmonary blood flow in response to physiologic stress. Other symptoms are caused by various multisystem complications associated with cyanotic congenital heart disease. Examination findings vary with the progression of the disease. Early in life, infants with a large systemic-to-pulmonary communication may demonstrate mild pulmonary overcirculation with symptoms of cor pulmonale. Initially, cyanosis is absent, and infants present with the signs and symptoms of heart failure. Physical examination may reveal tachypnea, nasal flaring, grunting, retractions, and tachycardia.

**Results.** Laboratory studies used in the diagnosis of Eisenmenger syndrome include complete blood count, biochemical profiles, and iron studies, in addition to blood gas assessments. Imaging studies can reveal cardiac structural defects and pulmonary changes, including irreversible alterations in the pulmonary system. Electrocardiography can also reveal signs of underlying cardiac defect and of right ventricular hypertrophy, while histologic findings can be used to determine the stage of pulmonary vascular pathology. If the pulmonary artery pressures do not fall with inhalation of 100% oxygen or nitric oxide, the pulmonary hypertension is considered irreversible, and the patient is not a candidate for surgical repair. Pulmonary angiography can reveal structural alterations in the pulmonary vascular bed. Irreversible changes (consistent with Heath-Edwards III severity) can be visualized and may include loss of normal arborization, as well as tortuosity, narrowing, or cut-off of small pulmonary arteries. In the early stages, chest radiography reveals a typical appearance of increased pulmonary flow with right ventricular or biventricular enlargement, right atrial or biatrial enlargement, pulmonary vascular plethora, and an enlarged main pulmonary artery. Advancing pulmonary vascular disease appears as a normal cardiac silhouette with dilated main and branch pulmonary arteries without evidence of pulmonary overcirculation. In patients with severe pulmonary vascular disease, radiography reveals a normal-sized heart, pruning of the pulmonary vasculature, pulmonary infarction, and/or calcification of a patent ductus arteriosus. In severe pulmonary vascular disease, histologic



analysis reveals abnormal extension of muscle into small peripheral arteries, severe medial smooth muscle hypertrophy of existing muscular arteries, plexiform lesions and increased intercellular material, and a reduction in the overall concentration and size of arteries.

**Osipenko T. S.**

**CLINICAL AND METABOLIC EFFICACY OF HEPTRAL (ADEMETIONINE) IN PSORIATIC PATIENTS WITH A PATHOLOGY OF THE HEPATOBILIARY SYSTEM**

**Kharkiv City dermatovenerologic dispensary № 4 , Kharkov, Ukraine**

**Introduction.** Addition of Heptral (Ademetionine) in the dose of 800 mg per day for 15 days to the complex therapy of psoriatic patients with the concomitant hepatobiliary system pathology results in a reliable reduction in the concentration of low and mean molecular mass substances and malonic dialdehyde as well as increase in alpha-tocopherol. Heptral (Ademetionine) as a part of the complex therapy for this category of patients leads to a reliable reduction in the severity of the pathological process (PASI index) and degree of disorders related to the quality of life.

**Aim** - a comprehensive , in-depth study of clinical and metabolic efficiency of Heptral ( Ademetionine ) in the complex treatment of psoriasis patients with pathology of hepatobiliary system .

**Materials and methods** . We examined 47 patients with psoriasis pathology GBS (chronic hepatitis, chronic cholecystitis , chronic cholangitis, dyskinesia of bile-excretory pathways ) .

**Results.** All patients were followed , conducted clinical and laboratory examination before and after treatment , including examination, collection of anamnestic data , the study of common blood tests, urine tests, biochemical blood tests (bilirubin : general, direct , AST, ALT , alkaline phosphatase , amylase ; glucose , total protein , protein fractions : a, b,  $\gamma$ ; albumin , coagulation : PTI , fibrinogen, activated partial thromboplastin time ; cholesterol ; seromuroid ; DRR revmafaktor ; urea; creatinine ; residual nitrogen ) , ultrasound examination of GBS To characterize trends in the system peroxidation was determined content of malondialdehyde (MDA) and a- tocopherol (TF) in the blood plasma. Method Malakhov MJ in blood plasma , erythrocytes and urine was measured substances of low and medium molecular weight ( SLMMM ) that are universal markers degree of endotoxemia . The severity of psoriasis was assessed using the International Index of PASI

**Conclusions** . Purpose of treatment Heptral (Ademetionine) led to an improvement of the majority of the functional state of the liver in 47 patients . Clinical improvement was observed in 35 patients , a significant improvement in 9 patients , improved in 3 patients. Deteriorating effect nablyudplos not a single patient Thus, the appointment Heptral leads to more accelerated improvement or normalization of most of the above indicators of liver function , which allows to optimize the therapy of patients with psoriasis .

**Plotnikova V.V.**

**CELL CYCLE INHIBITORS IN THE PATHOGENESIS OF PSORIASIS AND COMPLEX THERAPY OF REVEALED CHANGES**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Department Dermatology, Venerology and AIDS**

**Supervisor: Prof. Dashchuk A.M**

**Introduction.** Psoriasis is recurrent dermatosis, whose share in the total structure of



skin diseases is 5-7 %. The aetiology of psoriasis is not clear yet, and its pathogenesis is actively studied by many scientists. Treatment of psoriasis is a difficult task. Particularly interesting are those works, which deal with the study of tumour markers in psoriasis. There are single reports that the damaged skin of patients with psoriasis reveals a much higher expression of nuclear protooncogenes *myc* and *fos* than that of membranous *abl* and *Ki-ras*. The participation of genes, which encode receptors on the cell membrane and take part in the transmission of mitotic regulation signals, in the mitotic activity of cells has been detected.

**Aim.** Study of the state of cell cycle inhibitor metabolism in the pathogenesis of psoriasis and assessment of the efficacy of pathogenetic mechanisms of therapy.

We believe that Glutoxim is one of promising drug preparations. It represents a new class of pharmaceutical substances, thymopoietins, and produces unique biological effects owing to its modulatory influence on intracellular processes of thiol metabolism, which plays an important part in the control of metabolic processes in cells and tissues. The effect of this drug is realized through depression of redox potential in transformed cells. It is shown that the depression of redox potential can produce apoptosis both at the expense of the half lifetime of protein p53 and with help of influence on the cascade of phosphoprotein kinases of the Ras signalling pathway. Hence, Glutoxim exerts influence on cellular immunity, normalizes cell metabolism and produces cytoprotective effect.

**Materials and methods.** The research involved 20 patients with psoriasis. Of them: 8 patients had the steady stage of psoriasis and 8 ones were with the progressive stage of the disease. The control group consisted of patients (4 cases) with the same diagnoses. The study of cytological characteristics of hyperproliferative processes on the level of cell cycle inhibitors in the skin of patients with the progressive stage of psoriasis revealed immunohistochemically a high expression of proteins p16, p19, p21 and p53. The expression of the above proteins in patients with psoriasis at its steady stage was slightly lower versus the progressive stage. The conducted studies make it possible to assert that expression of cell cycle inhibitors in psoriasis increases. Patients from the control group were given standard therapy. The main group of patients received Glutoxim preparation in the form of intramuscular injections of 1 % solution by 1 ml, No. 10, against a background of their standard treatment. Rates of the regressive development of the disease were assessed by the following indices: infiltration, erythema, oedema, desquamation, itching, excoriation.

**Results.** Against a background of their treatment all patients from the main group had a significant alleviation of itching; the patients developed a decrease of erythema and skin infiltration in lesion foci as early as on the 5<sup>th</sup> day of therapy, this infiltration and erythema almost completely regressing by the 15<sup>th</sup> day of complex therapy. After the end of therapy the foci contained only secondary pigmentation. The duration of hospital stay was as follows: for the control group of patients –  $25 \pm 0.2$  bed days; for the main group of patients, whose course of treatment included Glutoxim –  $20 \pm .2$  bed days. Thus, the use of Glutoxim in the combined therapy of patients with psoriasis normalizes expression of proteins p16, p19, p21 and p53, accelerates regression of psoriatic eruptions as well as reduces duration of the patients' stay at hospital.

**Conclusion.** Thus, the use of Glutoxim in the combined therapy of patients with psoriasis normalizes expression of proteins p16, p19, p21 and p53, accelerates regression of



psoriatic eruptions as well as reduces duration of the patients' stay at hospital.

**Potikhenska K.**

**DIAGNOSTIC MISTAKES OF VIRAL HEPATITIS AT THE PREHOSPITAL STAGE**

**Kharkiv national medical university, Kharkiv, Ukraine**

**The Department of Children Infectious Diseases**

**Supervisor – Ass.Professor Tatarkina A.N.**

**Introduction:** widespread viral hepatitis (VH) among children, polymorphism of clinical manifestations in different stages of the disease, the absence of effective methods of prevention.

**Aim:** establishment of the causes of diagnostic errors (DE) of VH.

**Materials and methods:** retrospective analysis of 213 cases histories of children from 2 months to 14 years old, who were admitted to hospital with misdiagnosis of VH. VH was not recognised in 79.3% and 20.7% of VH was diagnosed wrong.

**Results.** There were distinguished two groups of observations. The first group joined 149 (70%) with diagnostic mistakes of preicteric period, the second one - 64 (30%) with mistakes in jaundice period. Misdiagnosis of the first group of patients were SRS with intestinal syndrome - 68 (40.2 %), an acute intestinal infection - 44 (26 %), SRS - 9 (5.32 %), acute surgical pathology-10 (5.4 %), food toxic infection - 3 (1.8 %). In the first two days there were hospitalized 18 patients, 5 of them in first 24-hours. The disease was manifested like acute abdominal pain - in 9.5% patients, vomiting: a single - in 5.2% and re - 6.5%, increased body temperature to 38 °C - 3.6%, higher 38°C - 2.4%, diarrhea with the presence of pathological impurities - 4.1%, nasal catarrhal symptoms - 2.3% of patients. The disease was manifested decreased appetite - 67.5%, anorexia - 4.7%, 2-day transient fever - 40.2%, fever continued until the day of receipt - 18.3%, diarrhea - 31.3%, catarrhal symptoms - 30%; fatigue, weakness - 52.8%, headache - 9.1%, abdominal pain - 30.2% , flatulence - 27.8 %. The jaundice was the cause of misdiagnosis of VH and several other diseases. Misdiagnosis in this group were Gilbert's syndrome - 61.4%, conjugational jaundice - 22.7%, infectious mononucleosis - 18.2%, intestinal yersiniosis and pseudotuberculosis - 25%, hemolytic anemia-6.8%, chronic hepatitis - 6.8%, carotene jaundice - 4.5%.

**Conclusions:** The analysis of diagnostic mistakes of VH of children revealed to the most frequent occurrence in preicteric period of illness, because of the variety of symptoms in this period of illness.

**Sukhorukova M., Orlovska K.**

**PROBLEM OF RABIES IN KHARKIV REGION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Epidemiology Department**

**Introduction.** Rabies is a zoonotic disease (a disease that is transmitted to humans from animals) that is caused by a virus. People are usually infected following a deep bite or scratch by an infected animal. Rabies occurs in more than 150 countries and territories. More than 55 000 people die of rabies every year mostly in Asia and Africa. 40% of people who are bitten by suspect rabid animals are children under 15 years of age (WHO, 2013). The Kharkiv region is the areas of concern for rabies.



**Aim:** To assess the risk of human infection of rabies in the Kharkiv region.

**Materials and methods.** Epidemiological study of rabies in the Kharkiv region and Ukraine conducted using the report materials of the State Sanitary and Epidemiology Service (2007 – 2013). The incidence of rabies in humans and animals, appeals of the population for post-exposure prophylaxis (PEP) were analyzed.

**Results.** Analysis of animal morbidity on rabies in Ukraine found outhigh activity of epizootic process. Its feature was connection of chains of natural and urban types. We observed in structure of morbidity in animal species increasing a part of farm animals (from 53% in 2007 to 77.9% in 2013 in the Kharkiv region and from 53% in 2007 to 66.1% in 2013 in Ukraine), and increasing proportion of cats (from 33.6% in 2007 to 52.4% to 2013 in the Kharkiv region). Among the wild animals foxes dominated, but part of foxes decreased from 39.4% in 2007 to 15.9% in 2013 in the Kharkiv region. We found out tendency to decreasing number of people who applied for PEP in the Kharkiv region (from 239.7 per 100 000 population in 2007 to 167.8 per 100 000 population in 2013), and increasing the number of such persons in Ukraine. The majority of lesions of people were caused by dogs (72.6%). Results of analysis show 26,7 – 40% of bitten people was suffered from stray animals in the Kharkiv region and 20,5 – 24,1% of bitten people in Ukraine. On average 12,1-14,5% of patients in the Kharkiv region and 21,9-24,5% of patients in Ukraine received PEP. We observed 2 cases of human rabies in 2008 and in 2010. Persons who got rabies were bitten by their own dogs and didn't seek for PEP. In 2013, man had been bitten by fox, had refused from PEP and died.

**Conclusions.** Epizootic and epidemic processes of rabies in Kharkiv region are determined by the signs such as in Ukraine. The increasing of incidence of rabies of domestic animals cause increasing of risk of human infection and requires intensification of preventive work among the population. Effective treatment soon after exposure to rabies can prevent the onset of symptoms and death. Lack of routine immunization among dogs and cats increases risk of human rabies. Results of analysis show the necessary the enhancement of surveillance and control for rabies in Kharkiv region.

**Vinokurova O.M, Mohylenets O.I., Dulembova V.E., Onoprienko E.A.**

**BIOGENIC AMINES IN PATIENTS WITH ACUTE HEPATITIS B**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of infectious diseases**

**Scientific adviser: professor V.M. Kozko**

**Introduction.** According to WHO data about 2 billion people in the world are infected with hepatitis B. Annually about 4 million cases of acute hepatitis B are registered, and 1 million people die from the consequences of chronic hepatitis B. Factors leading to development of chronic disease are still not fully understood. There is not enough data about the level of some biogenic amines in patients with hepatitis B.

**Aim** – to study the level of some biogenic amines in patients with acute hepatitis B.

**Materials and methods.** Surveys of 30 patients with acute hepatitis B in Kharkiv regional clinical hospital of infectious diseases were done. The control group included 30 healthy people. The diagnosis of acute hepatitis B was confirmed by immunoferment analysis and polymerase chain reaction methods. The serum level of biogenic amines (serotonin, tryptophan, 5-hydroxyindoleacetic acid) was detected by standard methods.



**Results.** Serum level of serotonin in patients with acute hepatitis B was significantly increased and amounted to  $0,92 \pm 0,03$  mM/l. As serotonin is a mediator of inflammation increase of serotonin level in the first stage of development of the inflammatory process (alterative or cytolytic phase) is natural. Serotonin increases vascular permeability, enhances the chemotaxis and migration of leukocytes into inflammatory focus, increases levels of eosinophils in the blood, increases mast cell degranulation and releasing of other mediators of allergy and inflammation. Serotonin is a neurotransmitter that controls appetite, sleep, mood, which changed in our patients. Serum level of tryptophan in patients with acute hepatitis B was increased to  $66,5 \pm 1,5$  mM/l ( $p \leq 0,05$ ). Tryptophan – is an essential amino acid that is not produced by human body, and coming from the outside with food; it is found in many proteins (e.g. fibrinogen and blood  $\gamma$ -globulin). Accumulation of tryptophan leads to increase of the serotonin level and to neurotransmitters block. Level of 5-hydroxyindoleacetic acid was significantly decreased and amounted to  $0,23 \pm 0,02$  mM/l. Significantly decreased level of 5-hydroxyindoleacetic acid in the serum in patients with acute hepatitis B may be used in the differential diagnosis with jaundice of other origins, e.g. with jaundice due to malignancy, which characterized with increased serum level of 5-hydroxyindoleacetic acid.

**Conclusions.** 1. Increased serum levels of serotonin and tryptophan was revealed in patients with acute hepatitis B. 2. Significantly decreased level of 5-hydroxyindoleacetic acid in the serum in patients with acute hepatitis B may be used in the differential diagnosis with jaundice of other origins.

**Zharcova T., Putria A., Dyachenko G**

### **EARLY DIAGNOSTIC SIGNS OF THE VARIANT OF CURRENT OF SHIGELLOSIS IN CHILDREN**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department children infections diseases**

**Introduction.** Intestinal infections are one of the most frequently registered groups of children diseases. Early diagnostic of Shigellosis (Sh) will allow to avoid additional invasively manipulation in organism of small patients.

**Aim:** improvement of the diagnostics of current of Sh in children, using Vald-Genkin's mathematical theory.

**Results.** We have revealed prognostic criteria(PC) of current of Sh in 98 children (66 patients with smooth current of Sh (SSh), 32 - wave-like(WLSH)). We took into account differences between signs of anamnesis, clinical picture, laboratory factors, special factors (level of cytokines (IL1,2,4,6,8, TNF), prostaglandins (PG), antioxydanty activity of blood (AAB), vitamin E (VE), secretory immunoglobulin A (sIgA), and lysozyme (L). We used the Vald-Genkin's theory for determination of PC. For this we have separated all signs at ranges and have compared their frequency in both groups of patients. Prognostic sense has formed signs which reached factor of informatively more than 0,3. The prognostic of the current of Sh does adding PC at presence or absence of the signs. If amount PC reaches values "+13,0" and more, possible forecast SSh, but if "-13,0" and less - VLSH. The clinical and anamnestic signs had prognostic sense: carried earlier infections (acute respiratory infection-4,04, bronhitis+1,63, intestinal infection-0,13, children haven't diseases-13,94), anemia (no-1,53, presence +10,08), current to pregnancy (physiological-1,23, pathological+3,67), pathological admixtures in the stool (slime-10,1, blood-6,15, undigested



food+13,9, greenish stool-3,6, absent-7,2), vomiting (absent-5,78, onetame+12,8, repeated+1,3), spasm and rumbling sigmoid intestine (presence +1,8, absent +2,5), dehydration (1<sup>st</sup> degree-3,8, 2<sup>nd</sup> +1,5, 3<sup>rd</sup> +2,6), level of the defection gastrointestinal tract (gastroenteritis-3,3, enterokolitis-5,36, gastroenterokolitis + 0,27), the temperature of the body (less than 38.0 C - 0,71, 38,1 - 39.0 C +7,21, more than 39,1 C + 8,62, normally - 1,68). The laboratory factors had prognostic sense: clinical urinalysis (proteinuriya+2,08, ketonuriya+0,30, eritrocituriya+5,89,); the level of the hemoglobin (less than 115 g/l+3,75, more than 116 g/l-1,54) quantity segmentonuclear nutrophils (less than 7,35\*10<sup>9</sup>/l-2,13, more than 7,36\*10<sup>9</sup>/l +2,2). The special factors had prognostic sense: level PGE (less than 215 pg/ml+4,75, more than 215,1 pg/ml-3,81), IL-6 (less than 7,5 pg/ml-2,59, more than 7,5 pg/ml-3,45), IL-1 (less than 54 pg/ml-2,02, more than 54,1 pg/ml+7,66), PGF2 $\alpha$  (less than 70 pg/ml-2,53, more than 70,1 pg/ml+5,8), L (less than 0,52-4,78, more than 0,53%+2,93), TNF $\alpha$  (less than 70 pg/ml-1,87, more than 70,1 pg/ml+7,44), IL-2 (less than 60 pg/ml-1,87, more than 60 pg/ml+7,44), sIg A (less than 1 mg/l +3,40, more than 1,1 mg/l-3,51), AAB (less than 30%+4,0, more than 30,1%-2,56), IL-8 (less than 13 pg/ml-3,05, more than 13,1 pg/ml+3,54); VE (less than mkmoli/l+2,78, more than 12,1 mkmoli/l-2,12), IL-4 (less than 9,5 pg/ml-1,93, more than 9,51 pg/ml+3,0), Zn (more than 12,1 mkmoli/l - 1,05, less than 12,0 mkmoli/l + 4,97).

**Conclusion:** we have received PC of SSh and WLSH, which allow forecasting current of disease at initial stage accurate to 73%, using only clinical signs, but using special factors of the forecasting to risen to 95%



## PREVENTIVE MEDICINE

**Ahmed Abu Elenin, Gerasimenko O.I.**

### **PRESUPPOSITIONS FOR HEALTHY LIFESTYLE IN COMPARATIVE ADOLESCENT GROUPS OF TOWN DWELLERS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Hygiene and Ecology № 1**

**Introduction.** Nowadays our life is getting more and tense. People live under the press of different problems, such as social, ecological, economic and others. They constantly suffer from stress, noise and dust in big cities, diseases and instability. A person should be strong and healthy in order to overcome all difficulties. To achieve this aim people ought to take care of their physical and mental health. Nowadays healthcare plays an important part in everybody's life. Healthy lifestyle is popular with the old and the young. It promoted all around the world. Our lives could be so much easier if we lead a healthy lifestyle.

**Results.** Conditions of life activity have a considerable influence on the processes of growth and development so it's especially important for health of children and teenagers. It is easier to have a positive frame of mind if the body is fit and healthy and this in turn contributes to our emotional well being. If people are taught the basics of staying healthy in childhood, it is easier to look after their health when they are grown up. So researches of healthy lifestyle skills distribution among teenagers acquire the special significance. We were conduct the comparative study of life activity features of senior pupils living in large cities of Ukraine (Kharkov) and Egypt (Alexandria). It was used the questionnaire consist of main constituent parts: psychological microclimate, motoractivity, modeofday, character of feed and rulesof the personal hygiene. Researches in Alexandria were conducted in two schools – for boys and girls, in all there were surveyed 16 boys and 22 girls. As comparative group we selected senior pupils from classical school №1 placed in the center of the city.

The results of separate factors of risk study among teenagers allowed to expose similar tendencies and distinctions on separate parameters, characterized healthy lifestyle. It was set that indexes of psychological microclimate at school and in family life were higher for the Kharkov senior pupils (the 80% interrogated pupils estimated them by categories «above average» and «high» as compared to 27% analogical estimations in the main group). Observance of motor activity for the pupils of both inspected groups shows mainly average level (40% and 57% accordinglyestimated it in this way), alarming tendency was observed in fact that constituent part of teenagers showed their activity as “below average” (42% of main group and 36% of comparative group).

Maintenance of day mode was in average and above average level for 61% of Egypt senior pupils and 67% of Ukrainian senior pupils. Considerable most senior pupils estimated the quantitative and high-quality parameters of the feeding as «average» and «above average» (66 % of Egypt senior pupils and 50% - of Kharkov pupils), the high estimation of feeding organization was given by 8% Egypt and 10% native teenagers. 26% Egypt senior pupils and 9 % Kharkov senior pupils, in obedience to the results of questionnaire, observe the rules of the personal hygiene low-performance. Implementation of the indicated rules with an estimation «above average» and “high was characteristic accordingly for 26 % and 80 % teenagers.



**Conclusion.** Therefore it is established that the common traits of intraschool environment for the both inspected groups are motive activity, maintenance of day mode and arrangement of rational feeding. Substantial distinctions were found out concerning favourable psychological microclimate, rules of the sanitary culture and personal hygiene.

**Bayramov A.N., Kyrychenko M.P., Serebryanik A.U.**

**THE TYPES OF REACTIONS OF VEGETATIVE NERVOUS SYSTEM OF TRAINING AND NOT TRAINING AND NOT TRAINING TEENAGERS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** intensive physical loadings in the process of sport activity influence on functional states of the central nervous system which takes part in physiological processes of an organism. Tests with changing of a body position are informative methods especially for changing of the state of cardiovascular system. It is actual for such kinds of sport as: gymnastics, acrobatics, water jumping, pole jumping, parachuting etc. Under the influence of systematic trainings orthostatic stability increases. Thus, the tests with changing of a body position in the space can be used for estimating of an organism adaptation possibilities, determining of functional reserves of mechanisms of CVS regulation.

**Aim:** studying of specialities of adaptation of the central nervous system in training and not training teenagers, connected with the position of the body in the space.

**Materials and methods:** the experimental group of 10 athletes of the kinds of sport connected with changing of the body position in the space; the controlled group of 10 students who do not go in for sports. The orthostatic test by Makarov, modified according to Stoide, clinostatic test, Kerdo vegetative index. For comparative analysis we studied the figures of heart contraction frequency and blood pressure. The comparative groups differed in the degree of the expression of the reaction for the changing of the state from "down" position to "up" position and back.

**Results:** it is established that the students who do not go in for sports had low orthostatic stability. The increasing of heart contraction frequency under changing of a body position for 18-24 beats per minute was pointed. Sportsmen who do water jumping, trampoline jumping and 64, 5 % of wrestlers show vagotony and 35, 5 % show normotonia. The average pulse dynamics does not overcome 10 beats per minute under orthotest but decreases under clinotest and the dynamics of pulse changing is more than 12 beats per minute. The estimate of vegetative index Kerdo : in the state of the patience 5 students of the second group show normotonia, while the proportion of normotoners and vagotoners is 1:3 among athletes. The reactions of cardiovascular system appearing under ortho- and clinostatical effects because of changing of hydrostatical pressure and blood depositing in blood vessels, located in the orthoposition beneath heart, has compensatory character and directed to support blood pressure in the limits necessary for adequate blood supply. The data received demonstrate more expressive influences of parasympathetic segment of the nervous system on vegetative regulation of heart rhythm, which is regarded as higher level of functional condition of athletes organism.

**Conclusion:** 1. The vegetative nervous system of athlete is more adaptive to changing of a body position in the space because of more expressive influence of parasympathetic segment on cardiovascular system. 2. Prevailing of sympathetic reactions of non-training students and athlete -beginners show us the disturbances of regulation of



cardiovascular system by vegetative nervous system.

**Bogachova O. S., Reznichenko A.G.**

**LIFE ACTIVITY OF DIFFERENT AGE GROUPS OF STUDYING YOUTH AT  
THE EDUCATION SYSTEM REFORM**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of hygiene and ecology № 1**

**Introduction.** The analysis of health of studying youth in Ukraine gives evidence of negative tendency in dynamics of its basic parameters. According to the official data of Ministry of Health of Ukraine only the fifth part of pupils have no disorders in their health. Chronic non-specific, psycho-neurological and some somatic diseases, namely, the diseases of endocrine and cardiovascular systems as well as the diseases of digestive system are the most frequent. Adverse changes in health of pupils, alongside with the objective reasons are caused by existing shortcomings of the system of formation, preservation and strengthening of health of the youth. High distribution of somatic and psycho-neurological diseases confirms the priority orientation on preservation and strengthening of health at the certain part of studying youth and not enough a high level of motivation at this contingent to provide healthy mode of life. However, we know that the transfer from secondary school to educational institutions of vocational education or to higher education is accompanied by a change in the usual regime of the day for them, especially the regime of training sessions, and increasing the overall training load, the fundamental nature of the change (increasing share of manual labor and there are prerequisites contact adverse environment factors).

**Material and methods.** In our study we evaluated the life activity of students of High Schools (Kharkiv National Medical University and Kharkiv National University of Radio Electronics). The study group included 100 students of KhNMU and 100 students of KhNURE, groups were homogenous for age and gender characteristics. Research was carried out by testing students by means of a questionnaire "Mode of life" with estimation of such parameters as psychological microclimate, motor activity, a mode of day, a feeding and personal hygiene.

**Results.** A comparative analysis showed that medical students have the following features living conditions: significantly greater number of students had severe disorders ( $12.17 \pm 1.85\%$ ,  $P < 0.05$ ) and poor organization of work and leisure ( $45.19 \pm 2.81\%$ ,  $P < 0.05$ ) compared with students of technical universities, in terms of personal hygiene and the requirements of a healthy lifestyle medical students showed significantly better performance ( $26.28 \pm 2.49$ ,  $P < 0.001$ ) in compared with students of technical universities, more of which, moreover, have bad habits ( $15.00 \pm 3.57\%$ ,  $P < 0.01$ ). In terms of optimality psychological microclimate regime of motor activity, and feeding differences between groups weren't found. The psychological climate at the group and at home assessed by an overwhelming majority of students in both groups as optimal. Motor activity of the majority of students was unsatisfactory. Only  $7.45 \pm 1.46\%$  medical students and  $3.00 \pm 1.70\%$  students of technical universities have optimal motor activity (doing morning exercises, engaged in sports clubs, etc.).

**Conclusion.** Our research found that the risk factors in the life activity of students is a disorder of their physical activity, poor nutrition and failure to comply with the best mode of work and rest, which adversely affects the functional, psycho-emotional state and health of



students; during the first years of study, able to complicate significantly the process of psychophysiological adaptation.

**Halo Azad Khidwrbagi, Chumak L.I., Zinchukn A.M.**  
**STATISTICAL OF INFLUENCE AIR POLLUTION AND SMOKING ON**  
**LUNG CANCER INCIDENCE IN 17 EUROPEAN COUNTRIES, UKRAINE AND**  
**IRAQ; PROSPECTIVE ANALYSES FROM THE EUROPEAN STUDY OF**  
**COHORTS FOR AIR POLLUTION EFFECTS (ESCAPE)**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of Social Medicine**

**Introduction:** Lung cancer is the most commonly occurring no cutaneous cancer in men and women combined is the leading cause of cancer deaths. In 2014 alone, it is estimated that there will be 224,210 new cases diagnosed, and 72,330 women and 86,930 men will die from this disease. We investigate screening sensitivity, transition probability and sojourn time in lung cancer screening for male heavy smokers using the Mayo Lung Project data and also for data. We also estimate the lead time distribution, its property, and the projected effect of taking regular chest X-rays for lung cancer detection.

**Material and methods.** This prospective analysis of data obtained by the European Study of Cohorts for Air Pollution Effects used data from 17 cohort studies based in nine European countries, Ukraine and Iraq. Baseline addresses were geocoded and we assessed air pollution by land-use regression models for particulate matter (PM) with diameter of less than 10  $\mu\text{m}$  (PM<sub>10</sub>), less than 2.5  $\mu\text{m}$  (PM<sub>2.5</sub>), and between 2.5 and 10  $\mu\text{m}$  (PM<sub>coarse</sub>), soot (PM<sub>2.5</sub> absorbance), nitrogen oxides, and two traffic indicators. We used Cox regression models with adjustment for potential confounders for cohort-specific analyses and random effects models for meta-analyses. We apply the statistical method developed by Wu et al. [1] using the Mayo Lung Project (MLP) data, to make Bayesian inference for the screening test sensitivity, the age-dependent transition probability from disease-free to preclinical state, and the sojourn time distribution, for male heavy smokers in a periodic screening program. We then apply the statistical method developed by Wu et al. when we get the obtain from our analysis made analysis on 30 patients with history of smoking and 20 others nonsmoking and 40 other cases in Iraq they have lung cancer they lived in different part.

**Results.** The 312 944 cohort members contributed 4 013 131 person-years at risk. During follow-up (mean 12.8 years), 2095 incident lung cancer cases were diagnosed. The meta-analyses showed a statistically significant association between risk for lung cancer and PM<sub>10</sub> (hazard ratio [HR] 1.22 [95% CI 1.03—1.45] per 10  $\mu\text{g}/\text{m}^3$ ). For PM<sub>2.5</sub> the HR was 1.18 (0.96—1.46) per 5  $\mu\text{g}/\text{m}^3$ . The same increments of PM<sub>10</sub> and PM<sub>2.5</sub> were associated with HRs for adenocarcinomas of the lung of 1.51 (1.10—2.08) and 1.55 (1.05—2.29), respectively. An increase in road traffic of 4000 vehicle-km per day within 100 m of the residence was associated with an HR for lung cancer of 1.09 (0.99—1.21). The results showed no association between lung cancer and nitrogen oxides concentration (HR 1.01 [0.95—1.07] per 20  $\mu\text{g}/\text{m}^3$ ) or traffic intensity on the nearest street (HR 1.00 [0.97—1.04] per 5000 vehicles per day). And for heavy smokers The posterior sensitivity is almost symmetric, with posterior mean 0.89, and posterior median 0.91; the 95% highest posterior density (HPD) interval is (0.72, 0.98). The posterior mean sojourn time is 2.24 years, with a



posterior median of 2.20 years for male heavy smokers . after we collect information from there analysis we detected that those 30 patients with heavy smoking they have correction with high risk with having 3 stage of lung cancer .and those 20 patients who didn't smoke and have lung cancer it was due to different causes as family history and environmental work .but those 40 patintes in Iraq they have the same cause and type of lung cancer due to pollution and who has property as smoking they have high risk with getting last stage of cancer. Beside that we find out the same statically in those 17 European country with different level and detection we have diagram from there statically contain .

**Conclusion:** In the maintain and research determine that lung cancer may be Although the mean sojourn time for male heavy smokers is longer than expected, the predictive estimation of the lead time is much shorter and also may be increased risk with pollution. This may provide policy makers important information on the effectiveness of the chest X-rays and sputum cytology in lung cancer early detection.

**Herasimova O., Senik O., Semenova N., Golodko K.**  
**THE EFFECTS OF LIGHT ON THE PREMATURE INFANTS**  
**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of hygiene and ecology №2**

**Introduction:** It has long been hypothesized that bright neonatal intensive care units illumination may be implicated as a cause of retinopathy of premature infants. New researches have shown that despite advances in neonatology, Retinopathy remains a leading cause of morbidity and infant blindness in the premature infants. However, these issues have not been sufficiently studied.

**The aim** of our study was to examine the adverse effects of bright light on the premature infants in the neonatal intensive care units.

**Materials and methods.** Distribution of children of the sex was 1:1. Participants have been divided into 3 groups: I (61) newborns with very high levels of light, II group (control) (57) premature with low levels of light and III group - 40 newborns with very low levels of light and LEDs. During our researches the main attention was focused on studying the effects of bright light on the premature infants, who needs nursing in NICU for a long period of time. This period could last several days or several weeks, even months using medical equipment. Our diagnosis of retinopathy included history of present illness.

**Results.** The sources of light generated light levels (from 7 to 900 lx) in the NICUs № 1, in the NICUs № 2 from 200 to 480 lx, in the NICUs № 3 from 5 to 450 lx. There are fluorescent, incandescent and halogen lamps in the NICUs № 1 and 2. There are LED lamps (light emitting diodes) in the NICUs № 3. Light levels are ranged from 7 to 900 lx in the NICUs № 1 and 200 – 480 lx in the NICUs № 2. Lighting levels in the NICUs № 3 are ranged 5 – 450 lx. As a result, we have a statistically significant difference by Student's criterion, that in the NICU with high levels of light the retinopathy of prematurity was in 85.7 % of premature infants, in the NICU with low of light levels the retinopathy of prematurity was in 67.1% of premature infants, in NICUs № 3, retinopathy was not registered. Statistically significant difference by Fisher criterion at  $p < 0,05$ . Our studies confirm that using double-wall incubators and capes on them decreased light levels from 7 to 15 lx.

**Conclusions.** The bright light should be considered as one of the adverse factors of the complex factors influencing on the development of premature infants. Effects of bright light may cause the violation of growth, development and differentiation of the visual analyzer in



premature infants. Incubators and capes are reduce lighting levels to 760 lx and should be encouraged to reduce the effects of bright light in the neonatal intensive care units. So, organization of protective regimen is obligatory in the neonate intensive care unit. It is necessary to decrease light levels. We recommend replacing fluorescent, incandescent lamps on the LED lamps. We recommend double walls incubators and capes to reduce the effects of bright light in the neonatal intensive care units. Currently, we will to continue to study the impact of bright light on the development of preterm infants.

**Katelevskaya N.N., Obinyan Ofure Abigael**  
**HYGIENIC ASSESSMENT OF NUTRITIONAL STATUS OF CHILDREN IN**  
**PRESCHOOL INSTITUTIONS**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of hygiene and ecology № 1**

**Introduction.** Preserving and strengthening child care –is an important part of forming a healthy nation. Children's health cannot be achieved without good nutrition, which is a prerequisite of harmonious growth; physical and neuropsychological development and resistance to actions of infections and other adverse environmental factors. Food that is organized according to the needs of the child's body provides all the necessary nutrients (proteins, fats, carbohydrates, vitamins and minerals) and energy.

**Results.** Nutrient deficiencies can cause a delay in physical and mental development, impaired formation of the musculoskeletal system and internal organs. This type of deficiency is typical for young children. Young children have a greater need for quality nutrition, due to inadequate digestive system, and rapid metabolism - these are the main reasons for the difficulties encountered in the organization of children's nutrition. Food for preschools children to ensure their normal growth and development stipulates specific regulations. This is particularly important, especially since the child's body in combination with poor hygiene leads to the development of pathological and physiological changes, also acute and chronic diseases. This results in further degradation of the quality of a child's life, which will require constant care. In many cases, leads to the formation of chronic diseases in adulthood.

**Conclusion.** Thus hygienic assessment of nutritional status of children in preschool institutions is an important part of ensuring the health of children and adults in the future. The study of child nutrition in preschool institutions revealed numerous violations of hygienic norms, such as incorrect calculation caloric intake, insufficient amount of animal protein, vegetable oil, fresh vegetables and fruits.

**Lazarenko K.**

**HYGIENIC ASSESSMENT OF THE EDUCATIONAL PROCESS OF**  
**CHILDREN WITH MUSCULOSKELETAL SYSTEM DISORDERS IN**  
**SPECIALIZED BOARDING SCHOOL**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Department of hygiene and ecology № 2**

**Introduction:** An economic, ecological and social processes causes a negative impact on the functional capacity of the organism. Medical and psychological characteristics are determined to increase chronic diseases of children's. Among Ukrainian teenagers the



spread of chronic diseases is continually increasing. The number of socially determined diseases, socially significant diseases, psychological disorders, metabolic disorders, drug abuse, and toxicomania has been increased. The number of children's with scoliosis has been increased too. Our resources included an analytical review of the literature in the case of hygienic assessment of the educational process and adaptation in children's with musculoskeletal system disorders in specialized boarding school.

**Results:** Successful adaptation for children's is associated with possibility of getting education, including higher education. The complete education of children's with disabilities of health contributes to the social and psychological security and adaptation. Currently, the most complex and prolonged type of treatment and preventive care of children's with scoliosis is staying in specialized boarding schools, where the general educational process combined with security, health-improving, correcting and training regimes. Boarding schools could provide positive health-improving effect, with conducting a general educational process and allowing social and psychological rehabilitation of children's with scoliosis, contributing to the creation of the necessary conditions for social and psychological adjustment of children's and adolescents.

**Conclusions:** The study of children's and teenagers adaptation with scoliosis will be held at the Kharkiv general boarding school for children's with scoliosis number 13. Hygienic assessment will be included sanitary-epidemiological conditions, school environmental conditions and the educational and medical and health conditions.

**Litovchenko O.L. Eliseev R.N.**

**EFFECTS OF ELECTROMAGNETIC RADIATION ON LABORATORY ANIMALS WHO WERE IN CONDITIONS COLD STRESS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Hygiene and Ecology N2**

**Supervisor: professor Zavgorodnii I.V.**

**Introduction.** In our time, it is widely known that EMF are the most common irritants that affect the living organisms. EMF sources are numerous, their intensity permanently increased and influence on the health of the multilateral. Influencing on a man EMF may increase the risk of cardiovascular, neurological and psychiatric diseases or serve factor that contributes to the emergence of complex diseases with difficult etiology. The aim of the research study over the reporting period (9 months 2013) was study the features of changes in the functional state of the immune system of laboratory animals of the dual action of chemical and physical factors in toxicological model experiments.

**Materials and methods.** The experimental studies of the dual effect on the body positive low temperature and electromagnetic radiation and isolated electromagnetic field was carried out in modeling toxicological experiments on laboratory animals. For this, the developed and manufactured original equipment "Zatravochnaya camera" (patent number 83559) that allows simultaneously model the impact on laboratory animal's ambient temperature and to keep the necessary parameters of the electromagnetic radiation. In 2013, was held determination of toxic, bloodtoxic, immunotoxic effects and morphological changes of internal organs in conditions of combined impact on the laboratory animals electromagnetic radiation (frequency of 70 kHz, the intensity of 600 V / m) and low positive temperatures (from 4 to 60C ) in time model toxicological experiment. Experimental group observations were 9 animals which subjected to cold exposure factor (EF) and



electromagnetic radiation (EMR) during 30 days. The control group observations were 9 intact mature male animals.

**Results.** The biochemical indicators. In the analysis of biochemical parameters was founded that the combined effect of EF and EMR leads to effects of oxidative stress on the following criteria. Pathomorphological research of the internal organs of laboratory animals. Morphological study internal organs in the control group. Liver histoarchitectonics saved, in particles trabeculae are represented by rows of hepatocytes. In the cortex of the kidney are located renal glomeruli, surrounded by transverse sections of the proximal tubules. Renal glomerulus a uniform size, the capillaries their moderate plethoric. In the spleen are determined connective tissue trabeculae, intensive «fuksinofil» at coloring by Van Hizon. Trabeculae containing arteries and veins. A connective tissue capsule of the adrenal gland without signs of edema and fibrous. Clearly observed zonality of the cortex. Particles of testis represented concentric slices or flattened seminiferous tubules, closely adjacent to each other. In tubules are visible area, adjacent to basement membrane (basal area) containing spermatogonia, ablyuminal zone, located close to the lumen of the tubule in which are spermatotsytywhish are divided. Thyroid parenchyma presented a uniform size follicles which contain colloid, which has the form pale homogeneous eosinophilic masses. Morphological study internal organs during exposed EMR under low temperatures. In most of the observations (6 cases) lobular structure of the liver is saved, hepatic trabeculae with «sun» location, presented rows of hepatic cells separated by sinusoids. In Pas-dyeing cytoplasm of hepatocytes pale-red, that testifies to a low glycogen content. In 2 observations are defined focal tracts of red-purple deposits of glycogen. Is known that an important factors supporting the body temperature in cold is to mobilize carbohydrates from depot for thermogenesis, which could make sense in the experimental conditions. Among the normal hepatocytes there are numerous polyploidy cells having big nuclei. Availability polyploidy cells in the liver confirms the saved regenerative potential in the organ. Focal, in hepatocytes observed degenerative changes in the form basophilia and places - hydroptic changes cytoplasm up to necrosis of cells. In the kidneys glomerulus uneven quantities many - increased, education of capsule Bowman constricted by proliferation mezanhiotsyt. Glomerular capillaries plethoric, with signs of stasis. Straits twisted tubules constricted. At the same time manifested monotselyulyar necrosis of epithelial tubules. Interstitial connective tissue with evidence of edema. With regard to the immune system, as in the spleen dominated by large and medium-sized lymphoid follicles with clearly defined extensive T- and B-areas. Light reproduction centers of proliferating lymphocytes, reticular cells, accumulation of macrophages, plasmocytes. Adrenal histology for morphologic assessment criteria is undergoing some changes. There is uneven refinement of glomerular layer. There is dominated by dark acidophilic cells that is occurs lipodystrophy cytoplasm cells of glomerular layer. In the tuft zone there are areas of dystrophic changes: there is a pronounced dyskompleksation kortykotsytes, who lose their characteristic linear orientation and ability to form epithelial strands. In the brain layer marked decrease in compared with the control volume of neyroendokrynotsyiv cytoplasm and reduced then umber and size of vacuoles with a parallel increase in the blood supply of the brain substance. Thyroid parenchyma represented medium-sized follicles as well in the subcapsular parts of glands defined by group of large follicles. Is noted cell proliferation non follikle epithelium. The changes indicate a high functional activity of the organ.



**Conclusions.** 1. In animals of control group in the internal organs identified uneven plethora of vessels, moderate activity of functional components, a sufficient level of metabolic and reparative processes. 2. In the experimental group, response to stressor was observed in all investigated organs. Revealed changes reflect functional state of tension, which is the body's response to the impact of the stressor and in some of observations, is reversible. 3. In all observations take place varying severity circulatory disorders as dilation, uneven blood supply and development of stasis in the vessels of the microcirculation. 4. In 30% of cases in the liver marked by rough dystrophic and necrobiotic changes in the form of effects dyskopleksation, degeneration and necrosis of hepatocytes. In 50% of the investigated cases in the kidneys occurs formation glomerulonephritis of varying degrees of severity and severe degenerative changes in the epithelium of the tubules. 5. Significantly responsive to the impact of the stressor such organs like the adrenals. Availability small amounts of vacuoles in the cytoplasm of glomerular beam and mesh layers adrenal indicates a partial exhaustion initial product for the synthesis of hormones. 6. Morphological changes in the thyroid gland in the form of increasing the size of the follicular epithelium reflects some increase its function. 7. In the testes most sensitive germ cell epithelium, while the structure sustenotsytes and hlandulotsytes not broken.

**Pomogaybo K.G.**

### **RISK FACTORS FOR OBESITY IN CHILDHOOD**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of social medicine, organization and economy of Public health service**

**Introduction.** Obesity itself becoming an epidemic problem in many countries and all risk factors for obesity are becoming very important for healthy society. While many associate childhood obesity with an excess of food, the truth is that the causes are more complicated than that. From medical conditions to environmental factors, a child's risk for obesity increases significantly if certain conditions are present Childhood obesity continues to rise, and so do the negative results that come with it. Type 2 diabetes, asthma, high blood pressure, and early social discrimination are just a few of the issues faced by an obese child. What's worse, youth who are overweight or obese have substantially higher odds of remaining overweight or obese into adulthood, increasing their risk of disease and disability later in life.

**Aim.** To study risk factors of obesity in childhood

**Material and methods.** Statistical, sociological.

**Results.** We conducted a pilot survey of 30 children of overweight The questionnaire included questions concerning the nature of food, eating behavior and lifestyle. Analysis of the questionnaire data revealed that the children's meals were irrational and hypercaloric, while in the diet was dominated by solid fats and digestible carbohydrates 55% of children attending a fast food. On today's fast-food allow quick and easy snack, but they rarely sell healthy foods . As a rule, this food contain more calories and unhealthy fats, and fewer nutrients than home. According to the survey results, it became known that the majority of children consumed food in times of stress or boredom, while watching TV or reading, as well as many of them ate food just because they likes, such as chocolate, chips or ice cream. Studies have shown that 45% lacked regular exercise. The% 60 of children spent an average of 3.5 hours / day in front of the TV or computer. Long hours in front of the TV or computer



can be the most dangerous pattern of behavior, as it is proved that when watching TV metabolism is produced at a lower rate, and it should be noted that the fact that TV viewing promotes unhealthy snacking habits.

**Conclusions.** Such dietary habits that have been identified in this group of children, leading to eat food regardless of whether or not a person is hungry, and from them, as a rule, very difficult to get rid of as an adult. Therefore, the data suggest that it is preventative methods to combat overweight, adjusting and correcting harmful eating habits, optimizing motor mode, as well as stimulating the child's own motivation for a healthy lifestyle can prevent the development of obesity and its consequences.

**Semenova N., Khristenko N.**

### **THE EFFECTS OF NOISE ON THE PREMATURE INFANTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Hygiene and Ecology No. 2**

**Introduction.** Some researchers are consider that premature infants have an increased risk of loss of hearing, violation of cerebral functions, sensory development, and also language problems as a result of noise influence.

**The aim** of our study was to examine adverse effects of noise on the premature infants in the neonatal intensive care units.

**Materials and methods.** We are inspected 28 children, the conclusions of nursing of that differed substantially. Distribution of children of the sex was 1:1. The middle weight of the total cohort of premature infants was  $(2043,35 \pm 531,67)$  g (min – 810.0 g, max – 2900,0 g). Research and estimation of the noise loading was conducted by the hygienic methods. Our diagnosis of hearing loss included history of present illness.

**Results.** Noise levels in the NICU № 1 into incubator – 54 dB, in the NICU № 2 into incubator – 34 dB. In the NICU № 1 hearing loss registered in 71,4 % of premature infants, in the NICU № 2 – in 40 % of premature infants. Artificial lung ventilations, resuscitation systems, aspirators, and incubators are the sources of high noise levels in the NICU.

**Conclusions.** Noise can be considered as a factor that could to complicate nursing of premature infants. So, we proposed an algorithm to reduce the noise in NICU. We are proposing to make outside of hearing premature infants the Artificial Lung Ventilation, alarm signals of resuscitation. Currently, we continue to study the impact of noise stress on the development of preterm infants, namely their neurological condition, taking into account the starting neurological status and neurological status of children's in the clinical examination.

**Senik O., Herasimova O., Semenova N., Golodko K.**

### **THE EFFECTS OF LIGHT ON THE PREMATURE INFANTS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of hygiene and ecology № 2**

**Introduction:** It has long been hypothesized that bright neonatal intensive care units illumination may be implicated as a cause of retinopathy of premature infants. New researches have shown that despite advances in neonatology, Retinopathy remains a leading cause of morbidity and infant blindness in the premature infants. However, these issues have not been sufficiently studied.



**The aim** of our study was to examine the adverse effects of bright light on the premature infants in the neonatal intensive care units.

**Materials and methods.** We are inspected 28 children's. Distribution of children of the sex was 1:1. Participants have been divided into 3 groups: I (61) newborns with very high levels of light, II group (control) (57) premature with low levels of light and III group - 40 newborns with very low levels of light and LEDs. During our researches the main attention was focused on studying the effects of bright light on the premature infants, who needs nursing in NICU for a long period of time. This period could last several days or several weeks, even months using medical equipment. Our diagnosis of retinopathy included history of present illness.

**Results.** The sources of light generated light levels (from 7 to 900 lx) in the NICUs № 1, in the NICUs № 2 from 200 to 480 lx, in the NICUs № 3 from 5 to 450 lx. There are fluorescent, incandescent and halogen lamps in the NICUs № 1 and 2. There are LED lamps (light emitting diodes) in the NICUs № 3. Light levels are ranged from 7 to 900 lx in the NICUs № 1 and 200 – 480 lx in the NICUs № 2. Lighting levels in the NICUs № 3 are ranged 5 – 450 lx. As a result, we have a statistically significant difference by Student's criterion, that in the NICU with high levels of light the retinopathy of prematurity was in 85.7 % of premature infants, in the NICU with low of light levels the retinopathy of prematurity was in 67.1% of premature infants, in NICUs № 3, retinopathy was not registered. Statistically significant difference by Fisher criterion at  $p < 0,05$ . Our studies confirm that using double-wall incubators and capes on them decreased light levels from 7 to 15 lx.

**Conclusions.** The bright light should be considered as one of the adverse factors of the complex factors influencing on the development of premature infants. Effects of bright light may cause the violation of growth, development and differentiation of the visual analyzer in premature infants. Incubators and capes are reduce lighting levels to 760 lx and should be encouraged to reduce the effects of bright light in the neonatal intensive care units. So, organization of protective regimen is obligatory in the neonate intensive care unit. It is necessary to decrease light levels. We recommend replacing fluorescent, incandescent lamps on the LED lamps. We recommend double walls incubators and capes to reduce the effects of bright light in the neonatal intensive care units. Currently, we will to continue to study the impact of bright light on the development of preterm infants.



## DENTISTRY

**Al Salihi Ahmed Ibrahim, Al Jayli Bashar Rijadh, Cherepynskaya Y.A.  
IMPROVING THE EFFICIENCY OF IRRIGATION STAGES OF ROOT CANAL  
SYSTEM**

**Kharkiv national medical university, Kharkiv, Ukraine  
Therapeutic Dentistry Department**

**Introduction:** The success of endodontic treatment is always directly dependent on the quality of the basic steps such as: root canal preparation, medical cleaning the root canal system and filling the root canal system. Every root canal system (RCS) has spaces that cannot be cleaned mechanically. Irrigation is an important part of root canal treatment because it assists us in removing bacteria and debris configuring the system so that it can be obturated to eliminate dead space. The only way we can clean webs, fins and anastomoses is through the effective use of an irrigation solution (irrigant). In order to get maximum efficiency from the irrigant, the last one must reach the apical portion of the canal. It has been found that use of saline as an irrigant before and after instrumentation, markedly resulted in a 100 to 1,000 fold reduction in bacterial counts (Bystrom, et al 1981). Now in modern dentistry different systems are used to activate irrigants in the RCS (EndoVac, manual irrigation with Max-IProbe needle, Ultrasonic Needle Irrigation, Rinsendo end etc.).

**Aim:** Based on the actuality of this task we want to assess the conditions, modern methods and tools at the stage of chemical-mechanical processing of the RCS. To improve the effectiveness of cleaning the RCS, we want to offer an alternative, a simple way to activate the irrigation solution.

**Materials and methods:** Training endodontic blocks (12 pieces) were developed by mechanical tools to size 40/04 by ISO and in random order divided into two groups (6 pieces). In both groups, the mechanical processing was alternated with chemical agents (17% EDTA gel and 3% sodium hypochlorite solution). After drying, 1% solution of methylene blue was introduced on the full working length. In the first group, the elimination of the dye solution was performed with a conventional irrigation method by using distilled water (10 ml), syringe and endodontic needle. In the second group, in addition to using the original gutta-percha points, taken on the smaller size of the last working tool (35/02 by ISO), the activation of irrigant was performed by reciprocating movements. Visually, using binocular lenses (3.5 - fold increase), the quality of the processing was assessed; the processing was based on the speed of the complete discoloration of methylene blue solution within the lumen endodontic block, taking into consideration the volume of irrigant and time spent on processing.

**Results:** It has been established that in the second group, where the activation of the solution, using a gutta pin, was carried out additionally, the rate of elimination of methylene blue was higher in 2 times and took 2.5 minutes. At the same time the volume of irrigant was 2 times less than in the first group, where the average time for a complete discoloration solution was about 5 minutes. In the first group (traditional way) we have not achieved the complete elimination of methylene blue in the apical part of the training unit. In the second group we have achieved complete discoloration of solution in apical third.



**Conclusion:** At the stage of chemical-mechanical processing of the RCS, it is necessary to take into account a cross section of the root canal, chemical properties of irrigation solutions as well as the physical properties of irrigants, such as surface tension, active and passive diffusion, etc. Additionally, at this stage a clinician faces another more difficult task - qualified cleaning and disinfection of the apical delta. Due to the proposed method, we contribute to ousting the air bubbles, maximum contact between the surfaces of the irrigant and root dentin, and as a result - improving the efficiency of elimination of necrotic tissues and dissolution of smear layer.

**Al-karawi Manar, Humairi Zainulabdeen, Kuzina V.V.**

**FEATURES OF DETERMINATION OF PERIODONTAL STATUS OF PATIENTS  
FROM THE ARAB WORD.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Pediatric Dentistry, pediatric maxillo-facial surgery and Implantology**

**Introduction.** The Arab World comprises 22 countries from North and North east Africa and the Middle East. The cultural contacts are widespread in the modern world. Also a lot of foreign citizens are studied in Ukraine. They have their cultural habits, can influence clinical manifestation of dental diseases, selection of preventive and treatment measures. In general prevalence of periodontal diseases among Arabian citizens reaches 37-65 % with predominance of initial and moderate forms. Sometimes they need dental care. That's why dental specialists in Ukraine need information about features of determination of periodontal status of these patients.

**Aim.** To examine the foreign citizens who study in Kharkiv to take information about features of examination at determination of periodontal status.

**Material and methods.** Examination of students of different faculties of Kharkiv national medical university was performed. Interview, objective examination was conducted. The interview included the questions about life style in general, attitude to smoking and national variant - hookah smoking, method of teethbrushing – conventional tools or national, as a miswak, dietary habits. During objective examination color, texture, contour of gingival margin were detected. There are well-known criteria for healthy gums: pink colour, sharpened tops of gingival papillae, translucence of small vessels and dense tissue. However, in some individuals, the gingival margin has pigmentation of varying intensity and localization. In general, the presence of pigmentation is considered a normal option and does not depend on skin pigmentation, although more common in Caucasian residents and immigrants from the Arab World. At the same time, the pigment may be an indication of the gums of some pathological conditions or harmful habits. Dummett-Gupta Oral Pigmentation Index with following scores was used for estimation of level of pigmentation: 0 class - no clinical pigmentation (pink gingiva), 1<sup>st</sup> class - mild clinical pigmentation (light brown color), 2<sup>nd</sup> class - moderate clinical pigmentation (brown or mixed pink and brown color)- the 3<sup>rd</sup> class - heavy clinical pigmentation (deep brown or bluish black color), stomatoscopy was conducted in patients with pigmentation. PMA index, for determination prevalence and severity of inflammation in gingiva was conducted. Hygiene index by Green-Vermillion was used for determination of oral hygiene status.

**Results.** 500 students were examined at practical classes of the department of PD, Pediatric maxillo-facial surgery and Implantology. The age of patient was 19-28 years. From interview: 17 % of respondents – were the regular hookah users during about two or



three years, 36 % use national teethbrushing tools – miswak, predominance of plant food and one or two meal during the day, especially at night was revealed. The 56% surveyed had a satisfactory level of oral hygiene (OHI-S = 0,7-1,6), 38% - unsatisfactory (OHI-S = 1,7-2,5), 7% - good (OHI-S = 0-0.6). Inflammation of the papillary and marginal gingival was observed in 70% of patients. (PMA = 13,5-32,5), no inflammation - 30%. The majority (75%) of students had pigmentation of gingival area. The 1<sup>st</sup> class was detected among 32% of examinees. The 2<sup>nd</sup> class - among 35% of examinees and at 8% cases - the 3<sup>rd</sup> class, 25% of the interviewees did not have clinical pigmentation - class 0. At the stomatoscopy did not found pathology or benign diseases.

**Conclusion.** Determination of predisposing factors, that is connected with cultural behavior and prevalence of specific physiological characteristics of organism very important. During examination of patients from Arab World, the doctor should keep in mind following features: special dietary habits, using of national teethbrushing tools, hookah smoking and also gingival pigmentation as a kind of normal signs, which does not depend on color of skin. If clinical symptoms are present on a background of gingival pigmentation, the stomatoscopy should be performed.

**Bogatu S.I.**

## **CHANGES OF THE ORAL CAVITY AT GASTROESOPHAGEAL REFLUX DISEASE**

**Odessa National Medical University, Odessa, Ukraine**

**Department of Prosthetic Dentistry**

**Introduction.** Gastroesophageal reflux disease (GERD) is a disease with the development of characteristic symptoms of inflammatory injury of distal esophagus due to repetitive reflux into the esophagus, gastric and/or duodenal contents. The actuality of this problem is associated with a high prevalence of GERD among the population in Europe suffer from GERD to about 50 million people in the USA the figure is closer to 20 million people, and in our country prevalence in different regions varies from 40 to 60 %. However, quite a large proportion of patients with symptoms of GERD are "extraesophageal" character and include a pretty broad spectrum. As a rule, these are undervalued, especially in the absence of typical symptom is heartburn. This leads to diagnostic and therapeutic errors, inadequate tactics such patients. Frequent "extraesophageal" GERD symptoms are dental, knowing that it is possible at an early stage to diagnose the disease, refer the patient to a gastroenterologist and thereby eliminate the pathological processes in the oral cavity.

**Aim:** to study changes in the oral cavity in GERD to improve the efficiency of healthcare services.

**Results.** GERD and its manifestations are due to the influence of hydrochloric acid and pepsin in the lining of the esophagus, where they get from the stomach as a result of the pathological gastro-esophageal reflux. The effect of these damaging factors depends on the pH of the esophagus. Manifestations of GERD in the mouth pay special attention. The mouth is the beginning of the digestive tract, and its mucosa is an important component of anatomical and physiological connections organs of gastrointestinal tract. At a pathology of the digestive system changes in the oral cavity are fairly common, the mechanism of development which is connected with the influence of various acidic substances (hydrochloric acid), which was recognized relatively recently. According to the literature, all changes in the oral cavity in GERD can be divided into the defeat of the soft tissues (the



red border of the lips, mucous membrane, tongue, periodontal tissues)(afta of mucous membranes of the oral cavity, changes buds of the tongue, burning language) and hard tooth tissues (erosion of enamel), as well as changes in the composition of the oral fluid. Change the hard tissue of teeth in patients with GERD, characterized by the development of erosion of enamel. Frequent heartburn, vomiting, belching sour, bulimia make for a long erosive effects of reflectata on the surface of teeth. In patients with GERD also change the composition and properties of saliva. In GERD pH shift acidic side, which reduces the saturation of saliva calcium and leads to dissolution of enamel.

**Conclusions.** GERD is a common disorder that results in essential decrease of the quality of life of such patients. Due to the high prevalence and availability of extraesophageal manifestations caused by pathological reflux, GERD has become urgent not only for gastroenterologists, but for doctors of other specialties. Therefore the knowledge extraesophageal symptoms (dental) will allow early diagnosis of this disease and thus to assign adequate therapy, which in turn will lead to improvement of life of patients.

**Bogatyrenko M.V**

**CRITERIA FOR COMPARATIVE EVALUATION OF SURFACE MORPHOLOGY OF THE SAMPLE BASE SELF CURED ACRYLIC RESIN.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Prosthetic Dentistry**

**Introduction.** In conditions of material and technical equipment of the most dental-technician laboratories acrylic materials are still used for manufacturing of the removable prosthetic despite to all their shortcomings (Blinnikova A.D., 2000, Ogorodnikov M.Yu., 2004). At the present time the base self-cured acrylic resins are widely used for dentures` repairing and relining, for the manufacturing of the splints in the treatment of diseases of the parodontal tissues, for making an immediate and transitional dentures ("Redont-03", "Protacryl-M», «Villakryl-Ortho» and others). Pores, scratches, caverns, roughness and surface irregularities degrade physical and mechanical properties and serve as the retentional points for microorganisms and create the conditions for assimilation of the colony and formation of microbial biofilm, which contributes to the development of complications (Grigoriev A.N., 2007, Ampresyan S.V., 2012). It is impossible to control the quality of the surface of the removable prosthetic which is made of base self-cured acrylic resin without creation a comparative evaluation system of its relief.

**The aim** of the present study was to formulate the criteria of a comparative evaluation of the surface morphology of samples of the self-cured acrylic resin studied by the method of raster electronic microscopy.

**Materials and methods.** To achieve this aim we carried out the electron microscopy studies of samples of self-cured acrylic resin "Redont-kolir" (JSC "Stoma", Kharkov) on the electronic raster microscope JSM-840 («Jeol», Japan) in the laboratory of the microstructural studies in V. N. Karazin Kharkiv National University. In order to take the charge from the falling electron beam the samples of the material in a vacuum were covered with a film (thickness of 2-3 nanometers) of carbon or chromium. The image of the surface morphology were obtained in two arbitrarily selected points in the regime of the secondary electrons and registered in a digital form (resolution 4 nanometers and at 200 times magnification).

**Results.** Analysis of the images allowed us to formulate the following criteria for the



comparative evaluation of the samples` surface relief on a 5-point scale: 1) the presence of the gas pores which indicates a violation of technology or temperature regime of the polymerization of the plastic dough; 2) the surface`s smoothness of the polymer granules - the presence of microroughness on the surface granules indicates the evaporation or inactivation of the monomer; 3) the mutual arrangement of polymer granules (scattered, together) is an indication of observance of proportions of polymer and monomer and degree of maturation of the plastic dough, 4) the presence of extraneous inclusions in thickness of the polymer (of the impression, molding, insulation material) which indicates a violation of manufacturing technology; 5) the presence of the foci of the unreacted polymer powder which indicates a lack of monomer that occurs because it evaporation or inactivation, non-compliance with the proportions of polymer-monomer, a thin layer of plastic dough.

**Conclusion.** The proposed criteria for evaluation of the surface morphology allow to judge about the homogeneity of the polymer` structure which provides physical and mechanical properties according the requirements of ISO-22112-2005 and technical conditions 24.4-00481318-057:2007.

**Cherepynskaya Y.A., Dontsova D.A., Volkova O.S., Goyenko E.N.**  
**DETERMINATION OF PBI IN DIFFERENT TERMS OF OBSERVATION DURING**  
**THE COMPLEX TREATMENT OF PATIENTS WITH GENERALIZED**  
**PERIODONTITIS**

**Kharkiv national medical university, Kharkiv, Ukraine**  
**Therapeutic Dentistry Department**

**Introduction:** Epidemiological studies of WHO indicate that the prevalence of diseases of periodontal tissues is very high, and it makes up from 88 to 100%. In contemporary sources, the data dealing with the use of drugs, including glucosamine, which has a variety of biological functions, and their impact on the course of generalized periodontitis, are insufficient. The combined use of quercetin and glucosamine is pathogenetically approved and reasonable. In addition to the increase of anti-inflammatory effects, this combination can decrease the process of destruction of periodontal tissue complex.

**Aim:** Evaluate the effectiveness of a therapeutic effect on inflammatory-degenerative processes in the periodontium tissues in the during application of glucosamine sulfate in patients with chronic generalized periodontitis. Determine the index PBI in different terms of observation during complex treatment of patients with generalized periodontitis.

**Materials and methods:** The therapeutic group was consisted of 19 patients with chronic generalized periodontitis (type II). Together with the basic treatment they were subjected to the removal of dental plaque, performed in 2 stages. The first step is represented by the mechanical and piezoelectric ultrasonic removal of subgingival and supragingival calculus. After the first phase, the patients were locally administered the gel granules of quercetin and solution of glucosamine, using an individual periodontal gumshield. Additionally, the patients were prescribed 2 g of “Quercetin Granules” 3 times a day P.O. for 1 month, and DONA (750 mg) for 1 month (once per day). After 6 months, the supportive therapy containing the same treatment regimen was carried out. While determining the papilla bleeding index (PBI) (Saxer, Mühlemann, 1975), the probing was carried out in the 1-st and 3-rd quadrants on the oral side, and in the 2-nd and 4-th – on the



vestibular side. Four degrees of bleeding (occurring after probing) of gingival sulci in the papilla area were defined. To determine the PBI, the amount of bleeding was divided into the number of examined papillae.

**Results:** The analysis of the papilla bleeding index (PBI) of immediate and long-term results of the observation has confirmed that the effect of directional ultrasonic scaling in the treatment of patients with GP of the second type, is effective; the indices of bleeding papillae has decreased; in 6 weeks after starting the treatment by means of directional ultrasonic scaling, using quercetin and glucosamine, the following decline in the index has been determined: from  $2,67 \pm 0,13$  to  $0,04 \pm 0,02$  ( $p < 0,001$ ). After 6 months of complex treatment of patients with GP, the changes in PBI has been observed. Comparing with the same parameters after 6 weeks, the PBI in 6 months has been significantly increased up to  $0,78 \pm 0,09$  ( $p < 0,001$ ). After 1 year of treatment, the PBI has been decreased from  $2,67 \pm 0,13$  to  $0,97 \pm 0,08$  ( $p < 0,001$ ). Thus, the dynamics of the average PBI has showed the positive results in those patients who had received the medicinal therapy with quercetin and glucosamine sulfate after directional ultrasonic scaling. The long-term examination of patients has revealed the decrease of the PBI on the average in 2,8 times (64 %) ( $P < 0,001$ ). The dynamics of decrease of the average indices of the PBI in 1 year has showed the adequate suppression of bleeding in patients from the examined group. The obtained results were remaining from 6 months to 1 year. Therefore, it has been evident that the suggested method influences the treatment of various etiopathogenetic mechanisms of GP development.

**Conclusion:** Due to the obtained data, it has become evident that the use of directional ultrasonic scaling, supplemented by local drug therapy with quercetin and glucosamine sulfate for individual gumshields, and oral introduction of granulated quercetin and glucosamine sulfate are effective.

**Chyryk O.**

## **CONTEMPORARY VIS-A-VIS ANTIQUE STANDARDS OF FACE BEAUTY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Oral and Maxillo-Facial Surgery**

**Introduction.** During all the times people thought about beauty. And what is beauty and what it canons? Since the beginning of recorded time man has tried to capture physical proportions as values which can be compared with accepted standards of beauty.

**Aim:** To compare the facial proportions of contemporary harmonious faces with those of antiquity, to validate classical canons and to determine new ones useful in orthofacial surgery planning.

**Material and methods:** Contemporary beautiful faces were retrieved from 2013 World's Most Beautiful List of People magazine (USA) and Ukrainian Award 'Viva. Naykrasyvishchi 2013'. The top-10 male faces and the top-10 female faces were analyzed with Scion Image software. The classical facial index, the Bruges facial index, the ratio lower facial height / total facial height and the vertical tri-partite of the lower face were calculated. The same analysis was done on pictures of classical sculptures representing 10 gods and 7 goddesses.

**Results:** Harmonious contemporary female faces have a significantly lower classical facial index, indicating that facial height is less or facial width is larger than in male and even than in antique female faces. The Bruges index indicates a similar difference between



ideal contemporary female and male faces. The contemporary male has a higher lower face (48%) compared to total facial height than the contemporary female (45%). The lower facial thirds index remained quite stable for 2500 years, without gender difference. A good canon for both sexes today is stomion-gnathion being 70% of subnasale-stomion.

**Conclusion:** The average ideal contemporary female face is shorter than the male face, given the fact that interpupillary distance is similar. The Vitruvian thirds in the lower face have to be adjusted to a 30% upper lip, 70% lower lip-chin proportion. The contemporary ideal ratios are suitable to be implemented in an orthofacial planning concept.

**Davydov A.A., Dmitrieva A.A., Bobrovskaya N. P**

**CLINICAL CASE OF DIAGNOSTICS AND TREATMENT OF SYMMETRIC  
FIBROMAS OF AN UPPER JAW**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of oral and maxillofacial surgery**

**Introduction.** Symmetric fibromas of jaws are rather rare formations of maxillofacial area. They are often met on an upper jaw from the palatal side that considerably interfere with manufacturing and using of movable dentures. Therefore, we consider expedient, to result our observation of the patient with symmetric fibromas of an upper jaw.

**Results.** Patient L, 32 years old, has reverted to the university stomatologic centre of Kharkov with complaints to presence of symmetric formations to an upper jaw in the area of canines at the left and on the right which disturb to the patient at conversation, food intake, a smile, especially at the left. From the anamnesis it is positioned that 12 years ago the patient has found for the first time thickenings of an upper jaw from the vestibular side of the insignificant dimensions from both sides, was not treated, to doctors did not revert. At the left the tumour was enlarged recently considerably, on the right - the tumour remains the insignificant dimensions. At examination of the patient: external inspection without features, there is on the vestibulum of an oral cavity dense neoplasm with ovoid form measuring 1,0 x 1,5 sm, in a projection of an apex of a root 23., at a palpation formation dense, slightly hilly, painless, mucous light pink colour. On the right in the area of 13 neoplasm in measure 0,5x 0,5 sm Occlusion is without abnormalities. The computer tomography shows formations of the oval form, measuring 1,0x 1,5 sm at the left and 0,5x 0,5 sm on the right are visible. On the basis of the conducted objective research and a computer tomography the diagnosis is positioned: symmetric fibromas in the area of 13, 23 teeth. Under local anaesthesia was made full excision of a growth at the left.

**Conclusion.** The histological decision is received: a fibroma constitution spongiform in places with formation of an ossiform tissue. Because of the big dimensions of a tumour the wound healed particulate a second intention, mucous light pink colour. The forecast congenial. After one year the patient did not show any complaints.

**Dontsova D.A., Cherepynskaya Y.A., Goyenko E.N.**

**APPLICATION OF MOUTHWASHES AS A COMPONENT OF PERIODONTAL  
MAINTANENCE THERAPY.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Therapeutic Dentistry Department**



**Introduction:** Nowadays it is known that there is the high prevalence of chronic catarrhal gingivitis among young people (under 30 years), which is 80-85% of all periodontal disease; an important direction of modern dentistry is the prevention of periodontal diseases. It is known that one of the main etiological factors is the microbial factor.

**Aim:** The aim of our study was to learn the effect of mouthwashes, which contain the active ingredient of 0,2% chlorhexidine, which has antimicrobial action against a broad spectrum of gram-positive and gram-negative microorganisms, fungi of the genus *Candida*, dermatophytes and lipophilic viruses.

**Materials and methods:** 20 people with intact periodontium were examined. To study the changes in the composition of microflora in the oral cavity (for the emergence of pathogenic microflora) after applying the rinse was conducted microbiological study of dental plaque. The fence material was performed with a sterile cotton swab from the buccal surface of the cervical area of the upper molars and transported to the laboratory in a test tube with nutrient field. The study was carried out in a microbiological laboratory of the Institute of Immunology and Microbiology. Microbiological study of plaque produced before applying the mouthwashes with chlorhexidine and after 2 and 4 weeks of using was conducted to determine the initial composition of the microflora.

**Results:** *E. coli* in plaque was detected by one of the examined people who rinsed the oral cavity with the mouthwash, and it survived after 4 weeks of rinsing. After two weeks of using the mouthwash we observed reduction of the total quantity including pathogenic microflora as well as autoflora in two times. By two of examined people we observed the emergence of *Candida* species in plaque 4 weeks after rinse application.

**Conclusions:** Our investigation suggests that the use of mouthwashes, the active ingredient of which is 0,2% chlorhexidine, may lead to phenomena dysbacteriosis, as evidenced by the emergence of pathogenic microflora in the oral cavity. Discussion: It is necessary to find out the optimal time period for preventive using of mouthwashes with various active substances. Future prospective: further comparative study of mouthwashes with different active substances is needed.

**Gladka O.M., Samosenko K.A.**

**THE CO-CURING TECHNIQUE - A TEMPORARY ALTERNATIVE FOR THE  
INLAY OR ONLAY.**

**Kharkiv national medical university, Kharkiv, Ukraine  
Department of therapeutic dentistry**

**Introduction.** With the availability of glass-ionomer cements with different modes of curing, economical composite restorations can be achieved even for large cavities. SDI offers the materials and technology which allow dentists a simple handling technique and give patients highly aesthetic results. A time-saving, simple but reliable restorative technique with minimal cost to the patient would therefore be indicated, and not only for the above-mentioned clinical situations. One solution for these problems is the so called «co-cure» technique. It is a hybrid filling technique, which combines the wear resistance and polishability of a resin composite with the strong dentine bonding and very low setting shrinkage of glass-ionomers cements. Since glass-ionomer cements release fluoride and are more moisture tolerant than resin composites may also be beneficial in situations where the



patient tends to develop secondary caries or the cavity cannot be kept entirely free of moisture.

**The purpose** of research was to approve that «co-cure» technique is a time saving procedure in which a resin-modified (light curing) glass-ionomer cement is used as an adhesive, which compensates for the shrinkage of the resin composite.

**Materials and methods.** 17 patients from 22 to 30 years old were examined.

The Main Group (MG) - 9 patients, where we used 'co-cure' technique for filling caries cavities. «Co-cure» technique - After cavity preparation, the entire cavity is etched for 5 seconds with 37% phosphoric acid (Super Etch; SDI Ltd.). After rinsing and drying with oil-free air, the conventional (self-cure) glass-ionomer cement (Riva Self Cure; SDI Ltd.) is placed into the preparation up to the dentine-enamel junction. In non-approximal cavities it is possible to fill up to the contact area. The cement is now starting to set and the clinician can start with the application of the second component. For this, resin-modified (light curing) glass-ionomer cement (Riva Light Cure; SDI Ltd.), prepared and mixed from its powder and liquid components to a smooth paste, is now smeared with a microbrush, over the setting conventional glass-ionomer cement and the enamel margins. Unlike with other resin composite restorations, this adhesive is not cured; instead, the resin composite is now applied and the cavity is completely filled. It is not necessary to work in 2-mm increments. Cure for 40 seconds with the photocuring light. While curing, heat is generated, which speeds up the setting of the conventional glass-ionomer cement, so there is no need to wait for it to set. Contour and finish can be now be done using standard techniques. The control group (CG) - 8 patients where we used standards close sandwich technique for filling caries cavities.

**Results.** Used of «co-cure» technique in the MG indicated that there was a reduction of spent time to setting restoration on 40% compared to the CG. The results obtained after six months showed that in MG the integrity of the restorations was 100%, while in the CG - 70%.

**Conclusions.** SDI offers glass-ionomer cement materials, which make the treatment of large cavities with resin composites possible, while achieving maximum aesthetics. The so-called 'co-cure' technique proves to be a time saving procedure in which a resin-modified (light curing) glass-ionomer cement is used as an adhesive, which compensates for the shrinkage of the resin composite. Working in 2-mm increments is not necessary and a strong chemical bond between composite and glass-ionomer cement is achieved. The dentist can therefore place an economical, yet still effective and aesthetic restoration, which is a practical alternative in certain clinical situations.

**Golik N.V., Fomenko Y.V., Mohammed Mahdi Salih**

**ORTHOPANTOMOGRAMS ANALYSIS FOR REALIZED AND POSSIBLE  
HEMISECTIONS.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Chief: MD, professor Nazaryan R. S.**

**Introduction.** Therapeutic measures performed to ensure retention of teeth vary in complexity. The treatment may involve combining restorative dentistry, endodontics and periodontics so that the teeth are retained in whole or in part. Such teeth can be useful as independent units of mastication or as abutments in simple fixed bridges. Thus tooth



resection procedures are used to preserve as much tooth structure as possible rather than sacrificing the whole tooth. The term tooth resection denotes the excision and removal of any segment of the tooth or a root with or without its accompanying crown portion. Various resection procedures described are: root amputation, hemisection, radisection and bisection. Root amputation refers to removal of one or more roots of multirrooted tooth while other roots are retained. Hemisection denotes removal or separation of root with its accompanying crown portion of mandibular molars. Hemisection refers to sectioning of a mandibular molar into two halves followed by removal of the diseased root and its coronal portion. The retained root is endodontically treated and the furcation area is made self-cleansable by removing the lip of root carefully. Since hemisected teeth fail by root fractures, it is important to restore them adequately by an extra-coronal restoration. It is indicated where one of the root of molar is unsalvageable due to caries, periodontitis or iatrogenic mishaps It is thus a conservative option with acceptable prognosis. It has other indications aswell. In orthodontics management of congenitally missing mandibular second premolar is simplified by hemisectioning the retained deciduous second molar and closing the space in stages. Hemisection is an useful alternative procedure to save those multi-rooted teeth which have been indicated for extraction.

**Materials and methods.** 600 orthopantomograms were investigated. They were divided into 2 groups. One group consisted of 300 randomly selected orthopantomograms provided by a general practitioner. Group 2 - 300 randomly selected orthopantomograms of the patients referred to an oral surgeon for tooth extraction for the reason of various forms of periodontitis. In both groups it was carried out a count of really conducted and potential hemisections in first and second permanent molars of the lower jaw.

**Results:** Studies of 300 OPG in Group 1 showed the following results: realized hemisection – 6 ones, possible hemisection – 7. In group 2 the calculation of results showed the following: realized hemisection – 0 ones, possible hemisection – 84. In group 1 there were 6 realized hemisections compared to the lack of them in the second group. This can be explained by the fact that hemisection for the general practitioner is a feasible manipulation, as all its stages are carried out by one expert in one visit with appropriate equipment. To narrow specialists, this operation is usually a two-stage and as a result, organizationally complicated one. There were 7 potential hemisections in the 1st group, compared to 84 cases of the 2nd group. These figures indicate a greater potential of toothsaving operations on condition of adequate equipment of the surgical practice and coordinated work with therapeutic profile colleagues.

**Conclusion:** Toothsaving operations allow significantly delay the implantation and / or removable prosthesis. Conventional division of medical and surgical admission leads to a loss of efficiency of an integrated approach in the treatment of periodontitis. It's necessary to improve co-ordination of narrow dental specialists in the management of patients with various forms of periodontitis. Informing patients about the possibility of such techniques will increase the motivation for toothsaving operations.

**Guryeva A., Steblyanko A, Kruchko A.**

**CLINICAL RESULTS OF LOCAL REMINERALIZES THERAPY**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Supervisor- professor E.N.Ryabokon**



**Introduction.** One of the main methods of treatment of acute initial caries is local application of remineralizing agents. The mission of our research was to study the clinical efficacy of local cream «JI SI MI Paste Plus» (made in Japan) in patients with acute initial caries. This water-based cream contains Recaldent adding fluoride (CPP-ACP, casein phosphopeptide - amorphous calcium phosphate, sodium fluoride). The content of sodium fluoride is 0.2% (900rm), which approximately corresponds to its concentration in toothpastes for adult patients. According to the prescribing information, CPP-ACP molecule in the oral cavity associated with biofilm, dental plaque, tooth enamel hydroxyapatite crystals deposited and soft tissue localizing bioavailable calcium, phosphate and fluoride. Salivation enhance the effectiveness of CPP-ACP, and flavoring agents, in turn, increase salivation. Efficiency also increases depending on length of stay CPP-ACP complex in the oral cavity. Dental Cream provides additional protection for the teeth, helps neutralize acid, acid-induced activity of plaque bacteria, as well as the acidity of other internal and external sources. The research involved 12 patients of both sexes aged 19-23 years (involves 4 patients pregnant women 20-28 weeks). Acute initial caries was diagnosed after clinical examination with the use of vital staining with 2% solution of methylene blue of affected teeth areas: fissures, cervical area, the interproximal surface. Oral hygiene index according to Fedorov-Volodkina and enamel resistance test was determined in all patients. Oral hygiene test indicators were within 1.2-1.7; enamel resistance test values of - 20-30%. Treatment of acute initial caries was carried out according to the "Protocols dental care" applications using a 2.5% solution of calcium glycerophosphate daily. Following a professional oral hygiene, patients were trained in the individual oral hygiene recommendations on nutrition, appointed complex "Calcium-D3 Nycomed" for intake.

**Results.** Patients were divided into two groups: I<sup>st</sup> group - with sensitive teeth to sweet and sour (5 persons); Group II<sup>d</sup> - no symptoms of hypersensitivity (7 persons). Patients in I<sup>st</sup> group further recommend use the cream «JI SI MI Paste Plus» according to the instructions at home. At the end of the month results of examination in the treatment process showed that the first group has almost disappeared tooth sensitivity, improved indicators TER-test (10%), carious spot has tended to decrease in diameter. Remineralization process the patients of the second group patients was slower going diameter of carious spots changed significantly, TER -test was within 10 - 20%.

**Conclusion.** According to the preliminary results, we can recommend a cream «JI SI MI Paste Plus» as an additional means in the treatment of acute initial caries.

**Hassan Mirza Ali, Golik N.V., Fomenko Y.V.**

**ROOT CANAL ORIFICES CALCULATION WITH AND WITHOUT USING  
MAGNIFICATIONS AND ULTRASONIC.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Chief: professor Nazaryan R. S.**

**Introduction.** Magnification is the process of enlarging something only in appearance, not in physical size. This enlargement is quantified by a calculated number also called "magnification". Clinical benefits of magnification: increased capability to find canals in teeth with difficult anatomy; internal and external tooth structure can be visualized without shadows that could block a 'fine' diagnosis, or impede treatment; tooth fractures (coronal/root) can be more readily identified; less of the apex needs to be removed during



surgical endodontics because of better visualization; complex treatments of perforations, and the removal of separated files, posts and other obstructions, are now done more successfully in a conventional manner, thus avoiding surgery; improved ergonomics for patients, staff and doctors. There are 2 basic types of magnification on the market today: loupes (or telescopes) and surgical operating microscopes. Loupes can be classified by the optical method in which they produce magnification. Compound loupes use two lenses to produce magnification, while prism loupes use refractive prisms. The operating microscope usually possesses magnification steps or increments that can be adjusted manually or with motorized foot controls and it depends on the focal length of the binocular, focal length of the objective lens, eyepiece power and magnification value. Magnification requires mandatory use of ultrasonic devices as other dental equipment complicates operative view. An ultrasonic scaler works at kHz frequencies. With the use of ultrasonics, the removal of posts, calcifications and broken instruments is faster, safer and easier. To locate orifices, missed canals or to negotiate calcified canals is more predictable using the ultrasonic tips under the microscope. So, practically the benefits of magnification and ultrasonic devices are discussed below in our experiment

**Materials and methods.** Fifteen earlier extracted tricuspid teeth were taken for our experiment. After routine primary endodontic access examination of the pulp chamber bottoms was performed under eye control, using stainless steel probe. The amount of orifices was found for each tooth. Then tooth cavity bottoms preparation was prolonged by using “Satelec” ultrasonic device. Calculation of the root canal orifice was again repeated using magnifying loupes.

**Results.** The amount of the root canal orifices found by normal eye without using ultrasonic device and magnifying loupes was 44 orifices. When using ultrasonic device and magnifying loupes the following result was found – 48 ones. The experiment clearly showed that less number of the root canal orifices was found in its first part in comparison to the second part, when ultrasonic and magnification were used. In the second part of the experiment the number of teeth in which root canal orifices have been further found was 26.7%. It means that in these teeth undiscovered and untreated root canals would reduce the success and forecast of any selected endodontic tactics and would lead to the inflammatory process development in the periodontium in future. Favorable treatment outcome with missing root canals is less probable without magnification and ultrasound.

**Conclusion:** 1. Dentist may find a greater number of root canals using magnifying loupes and ultrasonic. 2. Under magnification the benefits of ultrasonic techniques are shown clearly. 3. Magnification helps to perform controlled preparing and as result less weakening of tooth structure. 4. Magnifying loupes and ultrasonic device helps young and/or non-experienced dentists to understand the anatomical peculiarities. 5. Better to start with magnification then without it.

**Karnaukh E.V. Kryachko S.S., Sushenko E.L.**

**COMPARATIVE ANALYSIS OF REMINERALIZING EFFICIENCY OF FLUORO-  
AND CALCIUM-CONTAINING MEDICINE.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of pediatric dentistry, children's maxillofacial surgery and  
implantology**

**Scientific leader: professor Nazaryan R.S.**



**Introduction.** High prevalence and intensity of dental caries with children and adults, remain an current problem in dentistry (Saifullina H.M., 2000; Suntcov VG et al., 2001; Bazin A.K., 2004; Borovsky E.V., Lukinykh L.M., 2006). A complex of measures held during last year to prevent the development of caries process hasn't reduced the importance of this problem. Complains of patients with dental caries process are still often and reaches more than 70% in the total number of visits (Borovsky E.V., 2001, Yesayan L.K. 2000). So, improving the efficiency of prevention of dental caries is an important task for the modern dental science and practice.

**Purpose** of our research was to compare the effectiveness of remineralizing therapy of fluoride- and calcium-containing medicines.

**Materials and methods.** 27 third-year students of the Dental faculty of KhNMU took part in this research. They were divided into three groups depending on the used remineralizing medicine. The first group included 10 students who used toothpaste "Biocalcium" made by the company Splat during 1 month twice a day (in the morning and in the evening after meals). The second group of patients consisted of 9 persons who passed gel application ROCS Medical Minerals with standard tray during 14 days. The third group of patients consisted of 8 persons who used remineralizing medicine GC Tooth Mousse during one month. The degree of resistance of enamel by Okushko V.R. (TER-test) with all participants of this research was tested before the course of remineralization therapy and after.

**Results.** During the research we noted the increase of enamel resistance in all groups. The most effective one was calcium phosphate containing gel ROCS Medical Minerals (average index of TER-test this group before remineralization therapy – 8,6, after research – 7,3) and the medicine GC Tooth Mousse (average index of TER-test this group was 8 before remineralization therapy, after remineralize therapy – 6,5).

**Conclusions:** 1. The results obtained showed the effectiveness of the investigated medicines during remineralizing therapy. 2. We recommend to use the above investigated medicines for a wide application to increase caries prevention effects with the young people.

**Kashaba M. A.**

**THE STATE OF LOCAL PROTECTION FACTORS IN ORAL FLUID OF PATIENTS IN RELATION TO DENTAL STATUS INDICES AND VIBRATIONS DISEASE SEVERITY**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Dentistry**

**The aim** of the research was to investigate the content level of secretory immunoglobulin (sIgA) in oral fluid (OF) of patients suffering from vibration disease (VD) in relation to dental status (DS).

**Materials and methods.** DS investigation was performed in patients of two groups, which were formed by copy-pair method: the first group (n<sub>0</sub>=129) included the persons who are exposed to occupational vibration and whose results of comprehensive medical examination showed absence of VD; the second group (n<sub>1</sub>=129) included patients with VD, who were treated at the specialized department of the clinic NSI of occupational hygiene and occupational diseases of KhNMU, MOH of Ukraine (first subgroup - n<sub>1</sub>=63 patients



with VD of the 1<sup>st</sup> degree and second subgroup - 2n1=66 patients with VD of the 2<sup>nd</sup> degree).

**Results.** Content level of sIgA in OF in relation to PMA degree in patients with VD ranged from  $0,73\pm 0,01$  mg/cm<sup>3</sup> to  $0,60\pm 0,01$  mg/cm<sup>3</sup> and was evidently ( $p<0,05$ ) lower in patients with VD of the 1<sup>st</sup> degree in comparison to control group patients ( $0,68\pm 0,01$  mg/cm<sup>3</sup> and  $0,75\pm 0,02$  mg/cm<sup>3</sup> correspondingly – with  $PMA>2,0$ ) and also evidently higher in patients with VD of the 2<sup>nd</sup> degree in comparison to patients with VD of the 1<sup>st</sup> degree ( $0,71\pm 0,01$  mg/cm<sup>3</sup> and  $0,60\pm 0,01$  mg/cm<sup>3</sup> correspondingly – with  $PMA>1,0$ ). The above mentioned indicates an increase in incidence and severity of periodontal mucosa injuries in relation to the presence and severity of VD with relevant decrease in content level of sIgA in OF. Content level of sIgA in OF in relation to HI indices in patients with VD ranged from  $0,58\pm 0,01$  mg/cm<sup>3</sup> to  $0,76\pm 0,01$  mg/cm<sup>3</sup> and was evidently ( $p<0,05$ ) lower in patients with VD of the 1<sup>st</sup> degree (with  $HI\geq 1,7$  un.), in comparison to control group patients ( $0,69\pm 0,02$  mg/cm<sup>3</sup> and  $0,75\pm 0,02$  mg/cm<sup>3</sup> correspondingly) and also evidently lower in patients with VD of the 2<sup>nd</sup> degree in comparison to patients with VD of the 1<sup>st</sup> degree ( $0,58\pm 0,01$  mg/cm<sup>3</sup> and  $0,69\pm 0,02$  mg/cm<sup>3</sup> correspondingly). Content level of sIgA in OF in relation to DEF indices in patients with VD ranged from  $0,63\pm 0,01$  mg/cm<sup>3</sup> to  $0,76\pm 0,01$  mg/cm<sup>3</sup> and was evidently ( $p<0,05$ ) lower in patients with VD of the 2<sup>nd</sup> degree (with  $DEF\geq 11$  un. and higher) in comparison to control group patients ( $0,64\pm 0,03$  mg/cm<sup>3</sup> and  $0,77\pm 0,02$  mg/cm<sup>3</sup>) and also evidently lower in patients with VD of the 2<sup>nd</sup> degree in comparison with patients with VD of the 1<sup>st</sup> degree ( $0,64\pm 0,03$  mg/cm<sup>3</sup> and  $0,73\pm 0,02$  mg/cm<sup>3</sup> correspondingly).

**Conclusions.** 1. An evidently ( $p<0,05$ ) lower content level of sIgA was found in patients with VD in case of periodontal mucosa injuries ( $PMA<1,1$ ) sIgA (patients-  $0,71\pm 0,02$  mg/cm<sup>3</sup>; control group -  $0,78\pm 0,02$  mg/cm<sup>3</sup>). 2. VD influences the content level of sIgA in OF, as an evidently ( $p<0,05$ ) lower content level of sIgA was found even in minimal values ( $HI\leq 0,6$  un.) and assuming that the patient developed VD; in VD of the 1<sup>st</sup> degree (patients -  $0,76\pm 0,01$  mg/cm<sup>3</sup>; control group -  $0,81\pm 0,02$  mg/cm<sup>3</sup>) and its further decrease to  $0,64$  mg/cm<sup>3</sup> in patients with VD of the 2<sup>nd</sup> degree. 3. DEF index in patients with VD was found to influence the content of sIgA in OF, as a trend towards a decrease in content level of sIgA in VD of the 1<sup>st</sup> degree and its further evident decrease in VD of the 2<sup>nd</sup> degree was observed even in minimal values ( $DEF= 11\div 15$  un.) and assuming the patient developed VD. 4. Local protection state assessment in patients with VD requires further investigation, aimed at personalization of prevention and treatment of periodontal diseases.

**Komarov A., Spiridonova A.**

**USE OF THE GEL, APA CARE (LIQUID ENAMEL») IN THE TREATMENT OF DEMINERALIZATION OF ENAMEL AFTER ORTHODONTIC TREATMENT**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of pediatric dentistry, children's maxillofacial surgery and implantology**

**Scientific supervisor - Professor R.S. Nazaryan**

**Introduction.** Today the bracket system is the main method of orthodontic treatment of dioclose in patients with a structured permanent dentition. Orthodontic treatment is quite time-consuming and usually lasts for 2-3 years, depending on the anomaly. Braces, arc,



ligatures are retention point for accumulation of soft plaque and prevent the oral hygiene and natural cameocasino teeth. One of the major complications during orthodontic treatment with the bracket system is demineralizata enamel. Foci of demineralization often appear around braces, locked, in the cervical area, in approximal interdental contacts at high crowding of teeth.

**Aim** of study to evaluate remineralizing efficacy «APA CARE (Liquid enamel»).

**Materials and methods.** Were examined 35 patients in the age from 19 till 25 years of the city, located on orthodontic treatment braces from 9 months to 1 year. Among the examined patients in 13 persons were identified focal demineralization of enamel in the cervical area upper and lower incisors and canines, in the lower and upper molars. For differential diagnosis of the initial caries with non-carious lesions used staining of the teeth enamel 2% aqueous solution of methylene blue. All patients underwent a professional teeth cleaning. Assigned applications «APA CARE (Liquid enamel») in the home. Recommended procedure once a day after brushing your teeth, apply the paste on the teeth and to stand for 3 minutes. After the procedure the mouth is not rinsed and refrain from eating within hours. The course of treatment is 1 month. When evaluating the efficiency of treatment took into account the following parameters: the area of the hearth demineralization, color, and the size of the spot, the surface Shine. To assess the remineralization of tooth enamel conducted test enamel resistance (TER-test).

**Results.** The research determined that the area foci demineralization decreased by 1.2 times, which was accompanied by a clinical changes: there has been a reduction in the visible part of carious stain, enamel acquired a natural Shine. Revealed a significant improvement of the indicators characterizing resistance of tooth enamel to acids: test of resistance (TER-test) the indicators from  $54.6 \pm 2.6 \%$  fell to  $34.7 \pm 1.8 \%$ .

**Conclusions.** Thus, gel «APA CARE (Liquid enamel») is effective remineralization drug may be recommended for the prevention and treatment of lesions demineralization of enamel in patients undergoing treatment with the bracket system.

**Kopit'ko M.**

### **TREATMENT OF PATIENTS WITH FACIAL NERVE PARESIS BY ELECTROSTIMULATION**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Introduction:** The frequency of facial nerve neuropathy is 20 in Europe and in Japan 30 per 100 thousand population. Unable to identify any seasonal, age-related or sex differences.

**Aim:** To define if electrostimulation is useful treatment of patients with facial nerve paresis.

**Materials and methods:** survey technique – visual, patients with facial nerve paresis have same clinical picture: facial asymmetry, half of the face on the affected side is stationary, symptom of Bell, lagophthalmos, symptom Reviyo, nasolabial fold on the side of paralysis smoothed, Nasolabial fold on the side of paralysis of muscles smoothed corner of his mouth dropped, passive lifting of corners of the mouth of the patient leads to the fact that the angle of the mouth on the affected side of the facial nerve due to decreased muscle tone rises above. Apparatus FIZIOTRON-02 for electrostimulation, low-frequency pulsed electrical current, amperage - to severe pain. The study was conducted in 10 patients, who



had all symptomatology of facial nerve neuropathy. The treatment was started in 21 days after the onset of disease. This condition is necessary for successful treatment. Methods – 10 procedures with pause for a month, 3 courses.

**Results:** full recovery observed in 7 of 10 with total disappearance of symptoms, 2 of 10 feel better but need one more course of treatment. Patients can eat, speak better and feel less pain.

**Conclusion:** electrostimulation is useful treatment of patients with facial nerve paresis

**Kruchko A., Guryeva A., Steblyanko A.**

**THERAPEUTIC AND ORTHOPEDIC ASPECTS OF THE TREATMENT OF DENTAL DISEASES. EXPERIENCE OF LOCAL APPLICATION REMINERALIZE PASTE IN PATIENTS WITH GENERALIZED DENTAL HYPERESTHESIA.**

**Kharkiv National Medical University, Kharkiv, Ukraine**

**Supervisor- E.N.Ryabokon**

**Introduction.** Generalized dental hyperesthesia is the most common form of hyperesthesia. In young people hyperesthesia manifested more aggressive. In most cases it has caused, as well as other non-carious lesions, by general changes in the body (endocrine disorders, diseases of the gastrointestinal tract, central nervous system ect.). In individual group allocated the people with high sensitivity, but without noticeable morphological changes in the dental tissues. Treatment of generalized dental hyperesthesia should be comprehensive and aimed at the restoration process of enamel and dentinum mineralization, normalization of calcium and phosphorus metabolism and affect the central nervous system. Among the means of local application is generate professional drugs for professional use and patient for home using. Our attention was attracted topical cream for application with calcium, phosphate and fluoride - "JI SI MI paste plus" (made in Japan). This water based cream contains fluoride Recaldent with addition (CPP ACPF, casein phosphopeptide-amorphous calcium, phosphate fluoride). Level of fluoride is 0.2% (900RRM), which roughly corresponds to its concentration in toothpaste for adult patients. This drug annotations, molecule CPP ACPF in the oral cavity contact with the biofilm, dental plaque, tooth enamel hydroxyapatite crystals and deposited on the soft tissue localizing bio-available calcium, phosphate and fluoride. Salivation enhances the effectiveness of CPP ACPF and flavorings, in turn, increases salivation. The longer complex CPP ACP and saliva are maintained in the oral cavity, more the result is effective. Dental cream contains bioavailable calcium, phosphate and fluoride, according to annotations provides additional protection for teeth, helps neutralize excessive acidity caused by the action of acid-forming bacteria in plaque. And cream helps neutralize the acidity caused by the influence of other internal and external sources of acidity.

**Purpose** of our research is a clinical study of the effective local application «JI SI MI paste plus» patients suffering from systemic hyperesthesia.

**Material and methods.** 7 patients of both sexes aged 20-27 years were observed. All patients had a history pathology of the gastrointestinal tract (chronic gastritis with high acidity) and being treated by a gastroenterologist. The patient's complaints was about increased tooth sensitivity to sweet and cold. After clinical examination, including detection TER test, EPT, index estimation hygienic state was established- 1- 2nd severity systemic hyperesthesia. Pathology of hard dental tissues have been identified in 4 patients



experienced chronic generalized catarrhal gingivitis. Index CFA was 4-8, oral hygiene index according to Fedorov-Volodkina WAS 1,3-1,8, EPT was 2-3 mcA , TER test -3-4. Patients held professional oral hygiene have been trained in hygiene with further controll. Patients were divided into 2 groups (the 1st group- 4, The 2d-3 people). Cream «JI SI MI paste plus» for topical application was recommended for The first group of patients for the treatment of hyperesthesia. Patients of the second group with local application of this cream had intake of calcium glycerophosphate 0.25 - 3 times a day for 1 month. After the treatment patients in the 1st group did not mark any changes in state sensitive teeth. Hyperesthesia saved at the same extent. Patients of the second group notes a gradual decrease in tooth sensitivity.

**Conclusion.** Obtained results of treatment the system dental hyperesthesia indicates the absence of effectiveness of only local treatment by cream «JI SI MI paste plus» and arouse interest in studying the effectiveness of indicated preparations in the local treatment of acute initial caries.

**Kurov A.**

## **RESEARCH OF MARGINAL ADJOINING OF TEMPORARY SEALS TO THE TISSUES OF THE TOOTH AND COMPOSITE RESTORATIONS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Dentistry Department**

**Introduction.** Reliability of temporary obturation of endodontic access is very important for the success of endodontic treatment ( L.A.Dmytryeva , A.E.Romanov , T.V.Zyuzyna , Y.V.Butenko . , H.S.Pashkova , 2008). So important is to study of tightness of temporary seals of different materials and to determine the optimal method of temporary closure of the cavity.

**Aim:** To determine the status of marginal fit of temporary seals made of zinc-sulfate cement to tooth tissues and composite restorations.

**Material and methods:** zinc-sulfate cement (VladMyVa), adhesive system «Prime & Bond NT» (Dentsply), a set of composite restorative materials «Latelux», 1%, digital calipers, magnifying glass. 20 removed teeth with class II cavities were prepared, the composite build-up created and root canals were sealed. 10 teeth additionally covered with glycerin gel (air-block) for final polymerization of the surface layer of the composite. The cavities were sealed with zinc-sulfate cement and teeth were immersed into methylene blue solution at a constant temperature of  $37 \pm 1$  ° C for three days. After 72 hours, vertical slices of the teeth have been made and examined.

**Results:** 1. Presence of oxygen inhibited layer on the surface of the composite does not affect the tightness zinc-sulfate cement –composite. 2. Average penetration of methylene blue dye into the zinc-sulfate cement -composite verge comprised  $2,0 \pm 0,2$  mm; on the tooth -composite verge-  $3,6 \pm 0,2$  mm. The average height of temporary fillings was  $4,3 \pm 0,2$  mm. 3. "Free" cavity design (according to the principle of biological advisability) adversely affects the tightness of zinc-sulfate - tooth verge. In contrast, straight, well finished and diverging cavity walls improve marginal fit.

**Conclusions:** The use of build-up and creation of smooth diverging walls using the composite increases the reliability of the temporary obturation of the tooth cavity.



Nazarian R., Olshanetskaya A.\*

**INFLUENCE OF POLYCYSTIC OVARY SYNDROME ON PERIODONTAL STATUS**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of pediatric dentistry, pediatric maxillofacial surgery and  
implantology**

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surgery dentistry), Lugansk, Ukraine**

**Introduction.** One of the factors that affect the condition of periodontal tissues is somatic status, including state regulatory systems of the body, especially the endocrine. One of the diseases in which hormonal changes are leading to pathogenesis is polycystic ovary syndrome (PCOS ). PCOS is one of the most pressing problems of gynecological endocrinology, which is diagnosed in 3-16%. Frequencies of detection of PCOS rather variable due to the heterogeneity of clinical and endocrinological manifestations problem with PCOS is not limited to the problem of infertility. In these women have not only a disease of the reproductive system, but also an increased risk of other diseases due to the development of hyperglycemia, insulin dependent diabetes, hypertension, metabolic lipoprotein disturbance. The list of recent pathological conditions is favorable background for the formation of pathological processes in the periodontium.

**The aim** of this study was to determine the periodontal status in the presence of polycystic ovary syndrome.

**Material and methods.** To achieve this goal, it was assessed periodontal status and studied the medical records of 31 women diagnosed with polycystic ovary syndrome, which is applied for dental care and 15 women without somatic pathology aged 18 to 52 years. Using a questionnaire, the survey measured changes in subjective patient charter. The questionnaire included questions about the main complaints of patients with inflammatory periodontal diseases: the presence of discomfort, pain, bleeding gums, presence of purulent discharge from the gums.

**Results.** Analysis of the results of the study showed that the discomfort in the gums feel 93.54 % women with PCOS and 20% women comparison group. A similar pattern was observed in the survey of patients with respect to swelling of the gums. The first group of patients experienced edema was significantly more likely comparison groups: 90.3 % women with PCOS and 13.3% female comparison group. Women with PCOS have noted the presence of pain, bleeding gums in 65.52 % and 77.42 % women, respectively. In the comparison group of women with complaints of bleeding is defined in 6.67% women. Bad breath noted all women with PCOS and 20% women comparison group. At initial examination in 35.48 % patients of the study group showed signs of chronic catarrhal gingivitis (slight itching in the gums, bleeding them with mechanical stimulation, the presence of dental plaque without mineralization, swelling, redness of the gums). Teeth still not shifted. A similar clinical picture was found in 3 patients in the comparison. Another 35.48 % patients of the study group showed signs of generalized periodontitis mild severity. Generalized periodontitis of moderate severity was detected in 29% patients.

**Conclusion.** It should be noted that such a condition as chronic catarrhal gingivitis was typical for young people with PCOS, whereas generalized periodontitis - persons from older age groups. In the primary definition of simplified hygiene index (index Green-Vermillion) in the study group, the figure ranged from 0.3 to 3.48 and higher than physiological in all patients. The average in simplified hygiene index in this group was



1.71±0.22, in the comparison group 0.57±0.17. Papillary-marginally-alveolar index in women with PCOS at initial examination ranged from 15.21 % to 87.11 %. The average in papillary-alveolar-marginally index consistent with 47.21±2.44%. The average value can be considered as the extent of the pathological process in severe close to the whole group. In this case, 8 patients had severe degree (figure 51 % or more).

**Riabokon E., Nikonova Y.**

**POSSIBILITY OF USE OF CONDUCTOMETRIC METHOD FOR RESEARCH OF  
FISSURES OF TEETH**

**Kharkiv national medical university, Kharkiv, Ukraine  
Therapeutic Dentistry**

**Introduction.** According to the literature the urgent issue of a cariology is diagnosis and prevention of fissure caries as it still plays a leading role by its incidence. It is related to the features of the anatomical shape of fissures, long period of enamel maturing in this part of the tooth, retention of the food in them, complicated access of the means of hygiene, laborious diagnosis which is estimated subjectively in the majority of cases. Now many various techniques of diagnosis of caries, including fissure caries are known. One of the recent developments is the well-known electrometric method of determination of conductivity of solid tissues of the teeth developed by G.G. Ivanova and V. K. Leontyev. The method is based on measurement of the microcurrent passing through solid tissues of tooth. It is used for diagnosis of fissure caries, recurrent caries, enamel demineralization in the area of braces-system. It is also possible to use it for determination of the extent of maturing tooth enamel and condition of a regional adhering of the filling. However this method does not allow to assess the degree of stability of enamel of fissures to acids and to estimate its change after the carried-out remineralizing therapy. In available literature we did not find any research techniques, allowing to diagnose resistance of enamel of fissures to the effect of demineralizing solutions. In our opinion, the conductometric research technique can give such opportunity.

**The purpose** of our research was to study the possibility of use of conductometric method for assessment of stability of enamel in fissures to the effect of demineralizing solutions. For achievement of this goal we offer a technique of conductometric measurement of resistance of demineralizing solution brought in a fissure of tooth and the dynamics of its variation in time.

**Materials and methods.** For carrying out research thin needle electrodes which allow to ship them in a fissure gleam on the maximal depth were used. The distance between the ends of needle electrodes was 1 mm. Muriatic acid 0,01 N as demineralizing liquid solution of the was used. For carrying out research in a fissure of tooth needle electrodes were established, then demineralizing solution was brought to the gleam of the fissure. Measurements were carried out with a conductometer Anion 4151. We recorded the changes of electrical conductivity of solution graphically by means of an oscillographic unit attached to the personal computer. The obtained data were analyzed visually and by measurements of parameters of graphic record with the subsequent mathematical processing. The material of this investigation were the teeth extracted as the part of orthodontic treatment and temporary teeth with an intact chewing surface, extracted as a result of physiological change. Research



conducted in 2-3 sites of a fissure, the number of measurements in one point was 5. The time of one research averaged 80 seconds. The fissures of 12 constants and 7 temporary teeth were investigated.

**Results.** Reaction in the field of a pigmented fissures is more expressed than in the field of nonpigmented fissures. In cases when fissures had the homogeneous, nonpigmented character observed data in all points of research were identical.

**Conclusions.** The number of the measurements carried out until now does not allow us to perform reliable statistical processing of the obtained data. However, it allows to make the conclusion that the research technique offered by us can expand the information about the condition of fissures, degrees of their mineralization, resistance to severe media and to define differentiated approach to prescription of preventive actions.

**Saliuk O.D., Horbulia S.V.**

### **TOOTH INNER RESORPTION**

**Dnipropetrovsk Medical Academy of the Health Ministry Ukraine**

**The preventive dentistry department. Dnipropetrovsk, Ukraine**

**Introduction.** Despite the fact that the endodontics research faced some sufficient improvements during the last 20 years practically a dentist often might encounter cases when the opportunity to save a tooth is mistakenly considered to be lost. So that the only way remained is to remove a tooth. The example of that case is a tooth inner resorption. Remarkably, that study area is not explored well yet in Ukraine. What's more, in our own work experience we faced such cases for 3 times during the last five years.

**Aim.** That's why the purpose of the research undertaken leads to the idea of necessity to attract physicians attention to the both particular complications in the inner resorption diagnosis and the efficient choice in its treatment tactics.

**Material and methods.** Three male patients in the age 47, 50, and 53 were participating in the experiment. Eventually the clinical and rontgenological researches were conducted.

**Results.** As the consequence of the poll it was discovered that above mentioned patients had no idea about the current progressive teeth resorption. Two patients had had earlier their teeth cured and filled. The third one was directed by an orthopedist to treat 13<sup>th</sup> tooth, which was exposed to the pathological erasability and prepared to be covered up with the fake corona. During the 13<sup>th</sup> and 25<sup>th</sup> teeth rontgenological research the round shape symmetric center of the clarification was explored in the estuarine thirds of the root channel, specifically – in the bounds of the root channel. Alternatively, similar oval shape center was found in the estuarine third of the root channel. In addition to this as the result of the differential diagnosis with the external resorption, the range of photos with diverse eccentric angles appeared to be the proof of the inner resorption diagnosis in the above mentioned teeth. Interestingly, the clarification center shown on the roentgenograms was not switching to another places. Moreover, the volume of the dentine's destroyed tissues in all of the teeth made it possible to conduct the conservative endodontic treatment. In fact, the ongoing lavage with the 5% hypochlorite natrium substance usage played important role. The idea is to dissolve the surpluses of pulp tissues as well as to temporarily fill in the root channel with the material that contains the calcium hydrate. Finally, the filling with the lateral condensation gutta-percha method turned out to be the last point in the cure.

**Conclusions.** In all of the cases, when the inner tooth resorption is diagnosed it is necessary, according to the testimonies/indications, to implement the endodontic treatment



as fast as possible. If the expected outcome for the further complications elimination, provoked by the inner resorption doesn't appear its necessary to involve surgical treatment.

**Seregina I. S., Spiridonova K. U.**

**EXPERIENCE OF COLORED COMPOMER «TWINKY STAR» FIGHTING  
DENTOFOBIES IN CHILDREN**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of pediatric dentistry, pediatric maxillofacial surgery and  
implantology**

**Chief: M. D., professor Nazaryan R. S.**

**Introduction.** Psychological characteristics of the child ages , fear of doctors and , in particular, whether the child has difficulty dentofobis cause dental treatment of young patients . In this delayed treatment leads to the development of caries its complications and premature removal of teeth that only reinforces the fear of visiting the dentist. Therefore, the task before the doctor not only to provide quality dental care, but also reduce the fear and anxiety in the child , to gain his trust. In achieving these goals can help the doctor colored compomer Twinky Star (VOCO), colors which represented 7 bright colors ( white, gold , lemon , pink, blue , green, orange ) with a shimmering brilliance. Using this material opens up the possibility of a doctor treating a patient in a playful way , while the child participates in the selection of creatively colored fillings.

**Aim:** to examine the effectiveness of restorative material Twinky Star Clinic of Pediatric Dentistry .

**Materials and methods .** We were treated 116 teeth in 23 children aged 3 to 5 - years with filling material Twinky Star. Child was given an opportunity to choose the color of the future of the seal. After professional tooth cleaning , cavity preparation was performed (if necessary with anesthesia ), further isolation tooth. Filling cavities included several stages : therapeutic gasket (if necessary) , the insulating gasket (Ionosit), application self-etch adhesives «Futurabond», application and curing of the material in layers not thicker than 2 mm, finishing fillings . Quality assessment was carried out through the seals 1 and 3 months according to the criteria Ruge.

**Results.** The study found that boys prefer blue color fillings (65%) , and girls often choose gold ( 29% ), pink ( 34%) and Orange (37%) color .Assessment of quality seals a month showed that all teeth preserved marginal seal seals ( score Alfa), preserved anatomical tooth shape (criterion Alfa). Change the border color of the seal / tooth (criterion Bravo) and the presence of secondary caries (criterion Bravo) is not revealed in any tooth. Thus , after a month all seals can be classified as excellent - R (Romeo).After 3 months, the violation of fit seals found in three teeth ( 2.6 %), which meets the criterion of Bravo. One tooth is related to the criterion Charlie (0,9%), since it was the seal is movable.Secondary caries (criterion Bravo) had not been diagnosed and referred to the criterion Alfa 116 teeth ( 100%). Also, in any case, is not revealed tooth discoloration at the edges of fillings.Thus, after 3 months 113 seals categorized as excellent -R (Romeo), 2 seals - the category of acceptable -S Sierra and one seal to be replaced from preventive considerations to prevent future damage (criterion T Tango).

**Conclusions.** Thus, in the clinical study material Twinky Star demonstrated high strength properties , the duration of the wear resistance of the material , reliable marginal



adaptation . A child's participation in the treatment process can significantly reduce dentofobiya the child , which in turn improves the comfort and quality of the treatment of young patients .

**Steblyanko A.A.**

**EXPERIENCE OF PHYTOPREPARATIONS APPLICATION WITH ALVEOLITIS.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Scientific supervisor: prof. Ruzin G.P.**

**Introduction.** The problem of treating alveolitis, which develop after removal of a tooth remains very important at present. The main etiological factors in the occurrence of alveolitis are: an infection of periapical dental tissues, violation of rules in aseptic and antiseptic, traumatic removal , which lead to inflammation in the tissues of tooth extraction wells. The primary medications used today for treating alveolitis are chemically synthesized antibacterials, antiinflammatories, which in most cases have a number of side effects. This explains the growing interest to herbal remedies.

**The aim** of our study is to investigate the clinical efficacy of balsam ‘Vitaon’ (LLC ‘Litomed’, Moscow) in the treatment of alveolitis.

**Material and methods.** Balsam ‘Vitaon’ has anti-inflammatory, antimicrobial, wound healing, analgesic and hemostatic effect. It consists of natural plant extracts and essential oils with a high content of biologically active substances : oil extract of medical plants (mint, chamomile, sage , John's wort, wild rose, thym , yarrow, calendula, caraway, fennel, celandine, pine buds), ether composition containing peppermint, orange and fennel oil, camphor. We conducted a survey, treatment and supervision in the dynamics of 24 patients (14 women and 10 men). At the same time we took into account gender, age (18-55 years) , location, topography of extracted teeth, character of removal, oral hygiene and postoperative management of wounds. Patients we usually admitted at 2-3 days after removal of a tooth with complaints of severe pain in the hole, a bad smell from the mouth, discomfort, increased body temperature. For comparative evaluation of the treatment effectiveness depending on the nature of the method conducted all patients were divided into 2 groups of 8 people each. Treatment of patients with groups 1 and 2 were carried out by the usual method: analgesia, antiseptic manipulation (furatsilin, dioxidine), curettage of wells. Patients from the 1<sup>st</sup> main group the well was filled with a bandage balsam ‘Vitaon’. Material was soaked with blood, and well kept in the hole. Patients from the 2<sup>nd</sup> group had the the well filled with iodoform bandage. The effectiveness of compared methods when treating alveolitis was assessed by the time of pain disappearance, edema, hyperemia of the mucous around the hole, filling it with granulation tissue, the number of visits.

**Results.** The obtained results of studies have shown that pain and inflammatory changes in tooth extraction wells decreased significantly during the first days of starting treatment in 7 (87 %) patients of Group 1, in 6 (75 %) patients of the 2nd group . During the 2-3 day patients from the first group stopped to feel pain, there remained small congestion around the hole, when touched the hole there was no pain. Side effects when using phytopreparation balsam ‘Vitaon’ was not identified in either case. The same symptoms were observed among patients of the 2nd group at 3-4 day.

**Conclusion.** Thus, according to our research, conducted treatment of alveolitis using balsam ‘Vitaon’ is rational and effective. This method can be used as an alternative to the traditional method of alveolitis treatment using iodoform bandages, as well as among



patients with allergic reactions to iodine . Our results allow us to recommend research balsam 'Vitaon' in dental practice for the treatment of alveolitis.

**Steblyanko A., Guryeva A., Zarivchatskaya N., Kishkan A., Kalmykova E.**  
**THE EXPERIENCE OF FLUOROCONTAINING DRUGS FOR TREATING DENTAL  
HYPERESTHESIA.**

**Kharkiv National Medical University. Kharkiv. Ukraine**  
**Supervisor - Baglyk T.**

**Introduction.** Problem of eliminating of tooth sensitivity remains actual in dentistry in view of the increasing of periodontal disease and carious lesions. Despite the different directions of views on their causes - degenerative processes, disturbance of mineral metabolism, chemical, mechanical, neuro-endocrine and other changes - these diseases are communicated by a common clinical sign- hypersensitivity of hard tissues of the tooth. Eliminating of hypersensitivity symptom is an extremely important component in the complex treatment of patients.

**The purpose** of research was to evaluate the efficacy «Ftoroplen» (PP "Latus") and "Belak-F» (JSC SEZ "VladMiVa" Russia) for the treatment of hypersensitivity of different etiology.

**Material and methods.** 22 patients 35-44 years with hyperesthesia were examined and treated, 7 patients had exposed necks and roots of teeth with periodontal disease , 5 patients had wedge-shaped defects , 4 patients had enamel erosion -and 6 patients had a combination of lesions. All patients were divided into two groups, equivalent to the number of examined persons, diagnosis, number of teeth with hyperesthesia. The first group consisted of 12 patients which were diagnosed four cases of wedge-shaped defects, 3 cases of enamel erosion, 6 cases of exposure necks and roots of teeth, 5 cases of combined lesions accompanied by hyperesthesia of hard tissues. The second group included 10 patients who were identified by 4 cases of wedge-shaped defects, 3 cases of enamel erosion, 7 cases of exposure necks and roots of teeth, 6 cases of combined lesions. All the patients were conducted with oral hygiene, professional hygiene fluoride free toothpastes, recommended on the choice of oral hygiene for use at home. Index by Y.A.Fedorova, G.B. Shtorinoy (1988) were used for evaluation of oral hygiene. The first group of patients were treated with varnish «Ftoroplen», containing in its composition, as active ingredients as sodium fluoride and calcium fluoride. The drug was applied three times, once a day with intervals for 3-4 days. Patients of the second group were treated by varnish "Belak-F» with active substance potassium fluoride. Treatment was 3 applications daily with interval for 3 days.

**Results.** Results of the research immediately after the therapy showed that drugs «Ftoroplen» and «Belak-F» provide analgesic effect in all clinical cases. Effectiveness of lacquer «Ftoroplen» is more pronounced in cases of exposure of the necks of the teeth and roots in the pathology of periodontal tissues, as well as in combined lesions. Patients of the first group had a positive result as disappearance of pain sensitivity in 72.7% of cases of the 11 identified cases of hypersensitivity , while using the drug "Belak-F» in similar clinical cases showed the positive result in 61,1% of cases in the second group. In cases of wedge-shaped defects and enamel erosion the drug "Belak-F» was effective in 71.4% of patients in the second group compared with 62.5% of the patients of the first group after using the



lacquer «Ftoroplen». In other clinical situations the positive dynamics was registered in the disappearance of hypersensitivity. Negative results were not found.

**Conclusions.** That's why lacquers «Ftoroplen» and «Belak-F» can be used like the drug of choice in the treatment in various clinical situations.

**Tomilina A.V., Breslavets N.N.**

**NEW METHOD OF MECHANICAL RETENTION FOR POLYMER AESTHETIC  
FACING FIXATION IN FIXED CAST DENTURES.**

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**Orthopedic dentistry department**

**Introduction.** Today, more patients prosthetic dentistry clinic need to manufacture of dentures with quality and aesthetic designs. Combined stamped crown like a budget option aesthetic designs have a many disadvantages. First it is the lack of rigidity metal crown - for deformation under mechanical loads and have difference thermal expansion coefficients lead to delamination of plastic from the metal. Cast framework characterized greater durability and reduces the risk of deformation makes it more reliable for fixing of polymer a facing material. Therefore, orthopedic dentists increasingly paying attention to the fixed cast combined dentures with faced polymers. However, there is an important condition - the establishment of a reliable connection between the polymeric Facing materials and metal alloy. The most common is the use of metallic pearl with a diameter of 0.2-0.6 mm (set of wax), which uniformly cover the surface of the wax pattern of framework.

**Aim** provide a new method applying mechanical retention for fixing polymer in cast fixed dentures.

**Materials and methods.** To achieve this purpose, we proposed a new method of manufacture of metal-plastic-cast designs by applying mechanical retention to cast framework (Patent № 44305; method of fixing facing layer in the-cast designs of fixed dentures). The method consists in the following - on cast metal framework for fixed dentures manufactured by the classical technique, with diamond disc (thickness 0.4 mm) was applied to multiple notches angle  $\approx 20-30^\circ$  to the axis of the crown to a depth of 0.2 mm. The notches are spaced 0.3-0.4 mm apart to each other. On the occlusal surface of the abutment crowns and pontic notch made perpendicular to the axis of the crown. In the following, we recommend use of our developed jointly with varnish coating «Sinma M+V» corporation «Stoma» (Kharkov) (Patent № 83560 U, UA; Varnish «Sinma - M+V» surface coating of metal constructions of dentures) and aesthetic facing plastic «Sinma M+V» corporation «Stoma» (Kharkov) (Patent № 42735 A, UA; Plastic for fixed dentures «Sinma - M+V»). After two years of clinical observations in the first main group complication rate was 12.24% versus 34.7% of complications in the control group, which proves the advantages of our method. conclusions:

**Conclusions.** Our method allows to reach a high degree of fixation aesthetic plastic facing material with cast metal framework than provides increase of life the permanent fixed construction. This methodology is technologically accessible, reliable and economical, and the general use of the new varnish coating «Sinma M+V» completes its effectiveness.

**Vasylenko O. M.**

**THE TEMPERATURE CHANGES OF THE TOOTH ROOT SURFACE WITH  
ROOT CANAL HEATED GUTTA-PERCHA**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of pediatric dentistry, Maxillofacial Surgery and implantology**

**Introduction:** Vertical condensation method was described by Herbert Schilder in 1967. Today, dentists around the world use this technique and its numerous modifications. Using thermoplastification gutta-percha in injecting method is particularly advantage in complex form canals having ledges branching as network internal resorption, C – shaped or lateral canals, where the adaptation of the softened gutta percha need it so this method is much better. However, root canal filling may still not meet the standard of quality due to insufficient knowledge of obturation technique. At the moment, no prospective or retrospective clinical studies to evaluate the long-term forecast, the safety and efficacy of this technique, warm-up influence on periodontal tissue. Thus, the spread of technology and the complications arising from application thermoplastification gutta-percha, dictate the need for further in-depth study of this technique.

**Objective:** to evaluate the average value of the temperature rise on the root surface when administered in feed heated plugger.

**Materials and methods:** for the study were selected on 15 premolars which been removed during orthodontic therapy with having a root canals. Machining canals carried Crown Down with ProTaper by hand technique tool to F3 using lubricant "Endogel № 2 ", and also performed root canal irrigation 3% sodium hypochlorite solution. After washing and drying proceeded to obturation technique by continuous wave. Obturation was performed using instrument Endopilot (SHLUMBUM, Germany). Preheat plugger stitched 3-4 mm shorter than the apex. The heating source is set to the maximum temperature range 200 ° C into an input pin master with sealer. Continued to exert pressure for some time (10 sec.) sealed the apical mass of gutta-percha, which offset the shrinkage of the material during cooling. Then switch for the temperature rise for a short time (1-2 sec.), after display plugger and excessing gutta-percha. After filling in the apical third canal middle and upper part was obturated with gutta-percha using the technique of injection. Measuring the temperature of the root surface was carried out by using an infrared imager Ti10-FLUKE (U.S.A.) from a distance of 25 cm at the end of heat while plugger is introduced into the root canal. The measurement results are also recorded on the image using a thermal imager.

**Results.** During the studies the following results: average temperature measured with the introduction of hot plugger into the root canal was 55, 34 C. This means that the use of this system may cause irreversible damage to periodontal and bone. The minimum value of the measured temperature was 38, 1 C, the maximum – 84,4 C. The wide range of results probably indicates that calibrate and standardize this technique is extremely difficult. A big part in this case is human factor. In order to have projected temperature increases root, all heating devices should systematically go through the procedure of checking that at the moment is not feasible. In addition, lack of timer devices have not accurately measure the exposure time of heated plugger, reserving the right to choose a doctor exposure.

**Conclusion:** The use of methods of obturation using warmed gutta-percha can have complications in the form of periodontal tissue burns. Using low-temperature gutta-percha flow will help reduce the thermal load on the tooth and increase the working time, which is good to use in complex cases with thin curved root canals, as well as for inexperienced physicians. Before proceeding to clinical application should be thoroughly master the theoretical basis and take a master class on extracted teeth.



**Volchenko N.V., Sokolova I.I.**

**QUESTIONNAIRE SURVEY OF THE CHILDREN WHO ARE TAUGHT  
ACCORDING TO DIFFERENT SCHOOL CURRICULA (DESCRIPTION OF  
NUTRITION)**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of Dentistry**

**Introduction.** Over the last years the number of specialized schools, lyceums, classes with enhanced studying of different subjects is evidently increasing in our country. An apparent dependence of the degree and character of impairment of schoolchildren's health and the amount and intensity of academic load has been revealed. In this regard a lot of scientists try to detect factors which can influence health condition of schoolchildren in a negative way. One of the important moments of every child's life is the character of nutrition and dietary intake which can also influence health condition of the whole organism in general, and the oral cavity in particular.

Therefore **the purpose** of our research is detection of risk factors in nutrition of schoolchildren with different academic load.

**Materials and methods:** 115 children aged 9-16 took part in the research: 74 students studying in accordance with collegiate curriculum and 41 students studying according to general education curriculum. All the children received questionnaires which were to be answered at home with the participation of their parents. The questions concerned usual food intake: frequency of nutrition and intake of sweets, having snacks at school, intake of water and drinks.

**Results:** the main part of the children of the first group (58.1%) and the second one (61.0%) usually has three main meals. Only 4.1% of the schoolchildren studying in accordance with collegiate curriculum eat twice a day and less. 29.7% of the schoolchildren of the main group and 36.6% of the ones of the experimental group showed a tendency to take four meals per day. And five meals and more are typical for 8.1 % of the children of the first group and 2.4% of the second one. The frequency of sweet intake (cookies, candies, buns etc.) several times per day has been observed in 20.3% of the main group children and in 12.2% of the experimental group. 31.1% and 46.3% of the children of both groups (the main part of the children in the second group) take such meals once every day. The major part of the pupils studying in accordance with collegiate curriculum (43.2%) and only 41.5% of those who are taught according to general education curriculum have sweets several times per week. Only 5.4% of the children taught by means of the collegiate program do not have sweets at all. One of the principle points of this subject is the problem of having snacks at school. Practically the same number of the children, studying in accordance with the collegiate program, eats fruit (58.1%) and sandwiches (56.8%). 45.9% of the students of this group have buns and cookies as a snack. At the same 10.8% of the children prefer chocolate and candies and 8.1% – crisps, crusts and Mivina. And only 5.4% of the main group students have adequate dinner at school canteen. The major part of the experimental group children (43.9%) prefers having buns, doughnuts and cookies. The equal number of schoolchildren that is 39% likes having fruit and sandwiches as a snack. 19.5% eat chocolate and candies at breaks and 9.8% prefer having dinner at school canteen. One of the questionnaire questions concerns also favorite drinks. Almost all the children of the main group in equal parts drink water (66.2%), tea (64.9%), juices (64.9%) and compotes (60.8%). The similar regularity is typical for the experimental group as well: 65.9% of the



children prefer tea, 61.0% – water, 48.8% – juices, 43.9% – compotes. One of the sub-items of the survey is drinking of such beverages as Cola, Fanta, Sprite, Pepsi etc. These drinks are preferred by 17.6% of the children of the first group and by 4.9% of the children of the second one. And finally the purpose of the last question was to find out, where children take water for drinking, making tea etc. at home. The major part of the children of both collegiate (55.4%) and general education (56.1%) groups use water from water stations and wells. The water from water tankers is preferred by 25.7% and 19.5% of the pollees. The minority of the first group children use tap water (14.9%) and water from shops 12.2%). And few pollees of the second group prefer water from shops (17.1%) and tap water (12.2%).

**Conclusions.** 1. In terms of regularity of food intake there is no significant difference between two groups. The exception is made up by 4.1% of the children studying according to the collegiate curriculum who take food twice a day and even less frequent. This factor can affect the functional state of organism adversely. And 5.4% of the students of this group do not eat sweet. 2. The major part of the children of the first group (58.1%) prefers “fruit snacks” between classes when the majority of the students of the second group (43.9%) have buns, doughnuts and cookies. 3. Significant difference between the groups as for the criterion of beverages and water intake has not been revealed.

**Volkova O.S., Zeinab Hammoud, Bilal Mouaid Ali Hassen**

**ESTIMATION OF INFLUENCE OF DENTAL HEALTH ON QUALITY OF LIFE OF FOREIGN STUDENTS OF KHNMU**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of therapeutic dentistry**

**Introduction.** Integral part of human health is dental health, which is defined as the state of organs and tissues of oral cavity. It affects human well-being, giving him the opportunity to eat, smile, communicate with other people, without feeling uncomfortable, anxiety, and allowing him to be unrestricted to participate in selected social role. In dentistry commonly used objective criteria's for dental health, but the impact of dental status on the quality of human life remains unexplored.

**The aim** of our study was to investigate the influence of dental health on quality of life based on the use of special questionnaires for patients taking into account the impact of oral health on the chewing function, communication, and social welfare.

**Materials and methods.** We were interviewed 100 foreign students-volunteers, which are studied on 2<sup>nd</sup>, 3<sup>d</sup>, 5<sup>th</sup> courses of Kharkov National Medical University. The average age of participants was  $22 \pm 0,26$  years old. According to conducted survey from the total number 100 students-volunteers (100 %), there were 16 % women and 84 % of them are men; 75 % students of dental faculty, and 25 % were students of medical faculty. All students answered on several questions about influence of tooth health on social activities.

**Results.** Among examined persons were surveyed, and asked the following questions: "Do you have difficulties in biting, chewing food and in the pronunciation of words related to the poor condition of the teeth?", from which 87 % students do not have problems with chewing food and never thought about it, 68 % students have some difficulties in the pronunciation sometimes. The following question was asked: "Are you hesitate to smile because of the condition of your teeth?". From all respondents 34 % gave the answer "yes, permanently ashamed", 66 % - "never hesitate". 60 % have unpleasant smell, 3 % have



great difficulties with it, and 78 % of foreign students-volunteers answered that, condition of their teeth and oral cavity made in their life choice of profession. 7 % of volunteers have problems with teeth, which affect on their social activities and commitment to be a leader, 34 % - a little bit have problems from it. And 59 % does not have effect on social activity. 46 % of foreign students have no limitations in dealing with people of condition of teeth and oral cavity, 6 % a little bit, 26 % never thought about it, 22 % have limited in dealing with people.

**Conclusions.** As a result of our studies found that dental status significant influence on the physical, mental and social well-being of students.

**Voloshan A.A.**

**TOPOGRAPHIC AND ANATOMIC RELATION OF RETENTION, DYSTOPIA  
THIRD MOLAR AND BRANCHES OF MANDIBULAR NERVE.**

**Kharkiv national medical university, Kharkiv, Ukraine**

**Department of oral and maxillofacial surgery**

**Introduction.** A current urgent issue of oral and maxillofacial surgery is diagnostics and treatment of patients with retention and dystopia of a third molar of mandible. The complicated eruption of wisdom teeth often defines development of inflammatory processes in retromolar area and their spreading to the adjacent anatomic spaces. On the other hand, unerupted teeth are one of the common reasons of emergence of various maxillofacial deformations and neoplastic processes of jaws. Nowadays the atypical position of the 3<sup>rd</sup> molar increases the number that address to the dental surgeons. More and more complications result from an atypical topographically -anatomical ratio between wisdom tooth and the branches of a mandibular nerve.

**The aim** of this work is prevention of possible complications during surgical treatment of patients with dystopia and retention of the third molar of mandible at their close location to branches of a mandibular nerve.

**Tasks.** Carrying out adequate diagnostics and specification of a technique of surgical intervention concerning removal of retained and displaced third molar of the mandible, prevention of damage of branches mandibular nerve.

**Materials and methods.** 30 clinical cases of patients with retention and dystopia third molar of the mandible have been analyzed. All patients were treated at the department of oral and maxillofacial surgery in 2012-3 for the October – November period. In 48% of cases, the following options of the position of tooth were noted: 1) directly in the mandibular channel with its deformation; 2) oral-vestibular arrangement near the channel; 3) without penetration into the mandibular channel, but with affection of a lingual nerve. Topographical and anatomical on X-ray was show the full retention of teeth. Positions of retained teeth predetermined possible postoperative complications: horizontal or medial orientation – the injury of mandibular nerve, perforation of the mandibular channel (16 %); the lingual orientation – an injury of a lingual nerve (8 %).

**Results.** The analysis of our experience of surgical treatment of patients with retention and dystopia of the third molar of the mandible, showed that topographic-anatomical features of location of these teeth determine the frequency and nature of such complications as damage of branches of mandible nerve that leads to impairment of sensitivity of the relevant anatomic structures. Additional methods of investigation such as – X-ray, 3D CT, clinical research qualitatively helps the dentist to avoid affection of a mandibular nerve and its branches, and promote adequate and high-quality treatment of the patient.

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