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CONTENTS

Margarita Villar Luis, Luciana Barizon Luchesi, Sara Pinto Barbosa, Karla Selene Lopez, Jair Licio Ferreira Santos
Patterns of Alcohol Use among Patients Who Visited Community Emergency Care Services in Southwestern Brazil.................................................................1207

Maria E. Compton, David M. Compton
Public Health Informatics: A Brief Review of the Field.................................................................1221

Rodney P. Jones
Infectious-like Spread of an Agent Leading to Increased Medical Admissions and Deaths in Wigan (England), during 2011 and 2012.........................................................................................................................1234

Parag Deepak Dabir, Jens Johannes Christiansen
Not to be Missed Entity: Dieulafoy’s Lesion!........................................................................................1259

Ebtesam M. Al-Zabedi, Mahmoud A. Ogaili, Mohamed T. Al-Maktari, Mohamed S. Noman
Hepatitis B Virus Seropositivity among Schistosomiasis and Diabetes Mellitus Patients in Sana’a City, Yemen........................................................................................................................1263

Hamid Soori, Ali Nasermoadei, Elaheh Ainy
The Role of Graduated Drivers’ Licensing on Incidence and Severity of Road Traffic Injuries in Iran.................................................................................................................................1289

A.H. Aliyev, F.A. Aliyeva, K.Q. Mamedova
Dynamics of some hormones and glucose of blood in rabbits after prenatal hypoxia and subjected to postnatal physical exertion.................................................................1299

The influence of phosphorus complex organic mixtures on the content of sexual hormones and gonadotropins in the serum with violations in the reproductive system.............................................................................................................1306

A.H. Aliyev, S.J. Mammadova
Physical loading effect of blood components dynamic changes in the 30 days hypoxianal baby rabbits in the prenatal ontogenesis.........................................................................................................................1312

Venelin Terziev
Building a model of social and psychological adaptation..................................................................1318

Venelin Terziev
Opportunities of aplication of a competence-based approach in social adaptation of militaries discharged of service.............................................................................................................1330

L.V. Kaniovskaya, O.V. Kaushanska, O.V. Zaliavska, O.D. Liakhovich
Prospects of application of drugs based on guaric acid in treatment of patients with osteoarthritis and comorbid course of steatohepatitis and excessive body weight.........................................................................................................................1345

N.N. Korotich, N.M. Lokhmatova, I.A. Kolisnyk
Impact of dysplastic scoliosis on chemical composition of permanent teeth enamel.........................1352

Nataliya Kuzniak, Olena Hahen
Advantages and disadvantages of modern distance education.................................................................1358

Ruska Paskaleva
Motivation of students for active participation in practical training.................................................................1364
ABSTRACT
Alcohol is among the most frequently consumed drugs worldwide. However, identification and intervention measures for alcohol abuse have not yet been established. This article reports the results of applying the Alcohol Use Disorders Identification Test (AUDIT) in 463 patients from five centers for emergency care in a large city in the interior of Sao Paulo. The relationship between the AUDIT risk-levels of alcohol use and the socio-demographic variables of individuals seeking treatment between August and November 2010 was also examined. The instrument was administered by seven nurses and six student nurses. Individuals with AUDIT scores ≥7 received brief counseling (BC). The main reasons for seeking emergency care were “headache”, “pain”, and “ill-being”. Among the individuals in the study, 95.9% lived in the municipality where the data was collected, 40.7% had an incomplete elementary school education, and the percentage of alcohol dependence was lower among employed individuals (11.9%). The sample was composed of 61.1% men and 38.6% women. Among the men, 18.7% had scores suggesting dependence, and 48% exhibited hazardous drinking levels; the corresponding proportions among women were 3.3% and 16.7%, respectively. The mean age of the participants was 42 years, and 16.2% of the alcohol-dependent users were aged 30 to 49 years. Alcohol use was recorded as the cause of treatment for 3.4% of the individuals. The administration of the AUDIT in a community emergency care setting proved to be a useful tool for the early identification of high-risk drinkers.

Keywords: alcohol; management of substance-related disorders; drug use and abuse.

1. INTRODUCTION
Alcohol is one of the most frequently consumed drugs worldwide and is among the substances that cause the most harm to individuals in several areas of physical, mental, and social health. Health risks are related to and potentiated by the pattern of consumption [1]. In Brazil, a survey on alcohol consumption performed in 149 municipalities showed a 10% increase in the number of drinkers of five or more drinks per occasion for the years 2006 to 2012, year of the last survey [2]. These results should serve as a warning for healthcare professionals about the importance of measures that can identify hazardous alcohol consumers and provide appropriate intervention. In the United States, the American College of Surgeons implemented screening for unhealthy alcohol use as a recommended standard practice in all levels of trauma centers starting in 2006. Furthermore, it has been suggested that some trauma centers should be able to intervene with individuals identified as problem drinkers and that their treatment and education should be part of the nurse’s practice [3].

The use of scales, guides, or structured interviews has been proposed in psychiatric emergency assessments as a possible way to improve diagnostics [4]. Patients presenting substance use disorders (SUDs) are common among the individuals admitted to hospital emergency rooms. In a study performed in a municipality in Southeastern Brazil, 28.5% of health care delivery (1998 to 2004) was related to the clinical manifestations of SUDs [5]. In the United States, SUDs represented 8.5% of all care received in 2008 [6], whereas studies have reported that a high number of individuals with SUDs are admitted to psychiatric emergency departments.
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The influence of phosphorus complex organic mixtures
on the content of sexual hormones and gonadotropins
in the serum with violations in the reproductive system

Abstract: At 100 Wistar rat population in subacute experiment the effect of small doses of subtoxical phosphorus detergents (Efasol, Polifos, Syntaf) on the level of sex hormones in the blood serum of females - estrogen and gonadotropins was investigated by radioimmunoassay. There were 9 research groups and one control, 10 animals in each (N=100). Estrogen and gonadotropins were studied in rat serum. Significant inhibition of gonadotropin secretion may be combined with the permeability of the haemato-encefalic barrier for phosphorus complex organic compounds and their direct influence on the hypothalamic-pituitary neuroendocrine complex.

Keywords: xenobiotics, progesterone, prolactin, luteotropin, follicle-stimulating hormone, estradiol, serum, rats.

Introduction

In recent decades, accumulated a lot of data on the impact of harmful factors and the environment on production and reproductive function of women of childbearing age in contact with chemicals. Studies have shown that some chemicals can affect on the formation of defective gametes, the development of embryos and fetuses, gestation, lactation [1,2,3]. The analysis of scientific literature suggests that reducing the number of zygotes can be combined with the induction of dominant lethal mutations, and by reducing the number of fertilized eggs and therefore a violation of the fertilizing capacity of sperm as well as eggs. It is known that the frequency of ovulation, death of embryos before and after implantation controlled by independent genetic systems and genes that control death for implantation, exhibit high level of domination.
The increase amount of stillborn and abortions was repeatedly educed for women that work on chemical productions. Next to that, at the analysis of questionnaires, that characterize psychical and physical development and general of descendants status, attract attention on itself frequent complaints of workers of chemical industry on lag of the children in early development of cognitive function, subzero success with studies at school, excited, irritate, nervousness, increase morbidity of the nervous, cardiovascular, respiratory system, perverted of immunobiological reactivity etc. [3, 4, 5]. There are violation of the endocrine system and immunological insufficiency in many cases [5-7]. Researches specify on the wide use of phosphorus complex organic mixtures of difficult organic mixtures in different industries of national economy and on their contact with a population both on a production and in the way of life.

The absence of prognostic description of potential safety for warm-blooded animals and man, large production volumes and assortment of products on their basis, dictate the necessity of study of physiopathology and pathochemical mechanisms of forming of reproductive function in the conditions of the protracted subtoxic operating on an organism. Our previous researches showed that phosphorus organic mixtures that have the commodity name as Ef asol, Polifos, Syntaf 10-18 in doses 1/10 and 1/100 LD50 at the protracted subtoxic action in a toxicological experiment diminished the amount of living embryos, mass and sizes of garden-stuffs, promoted preimplantic and postimplantic death of the embryos [8, 9].

Above-mentioned, the purpose is to study the contents of serum levels of sexual hormones - estrogen and gonadotropins in the conditions of prolonged subtoxic action of phosphorus detergents.

Materials and methods

The choosing of organic phosphorus compound mixtures was justified by the necessity of opening the pathophysiological mechanisms of action and long subtoxical formation of reproductive disorders in rats in subacute experiment. The study subjected the following phosphorus detergents: Ef asol - mix based on and secondary alcohols fraction C10-C20; Polifos - a mixture of synthetic primary alcohols fractions C7-C12 and phosphoric anhydride; Syntaf 10-18 - a mixture of mono- and diephirs alkilphosphats' acid based on primary fatty acid fraction C10-C18.
The program included the study of subacute experiment on mature rats (female) population Wistar, weighing 210-220 grams. The animals were fed for 45 days by a metal probe daily morning fasting intragastric administered aqueous solutions of phosphorus detergents at a rate of 1/10, 1/100, 1/1000 LD50.

The control group of females received the appropriate volume of drinking water. In each group, both in experimental and in the control group were 10 animals (N=100). During all phases of scientific experiment we observed the rules of humane treatment of animals and requirements of the European Convention for the Protection of vertebrate animals used in scientific experiments and other purposes (Strasbourg, 1986).

Based on the parameters of acute toxicity the chemical mixtures belong to low-toxic compounds that do not have the species and gender sensitivity, but have distinct cumulative properties. All these xenobiotics on aggregate state are viscous liquids that are readily soluble in water and organic solvents - alcohols, ether, toluene, benzene and others. Average lethal dose (LD50) to white Wistar rats were set at 6,9 ± 1,2; 8,2 ± 0,4 and 11,7 ± 0,9 g / kg of the animal, according to Efiasol, Polifos - 72 and Syntaf - 10-18. According to the purpose of the study serum gonadotropin and estrogen level in female were studied by radioimmunoassay using appropriate test systems. The content of serum progesterone was determined using reagents Institute of Bioorganic Chemistry of Belarus; Prolactin (PL), luteotropin (LH), follicle-stimulating hormone (FSH), estradiol (ED) were determined using test systems of Oris Industrie SA (France) [8, 9]. Statistical analysis of the results was carried out by methods of variation statistics estimate the probability for the Student-Fisher.

Results and discussion

Results of assessment of the impact of phosphorus compounds in ovarian hormones in rats have shown that doses of xenobiotics in 1/10 and 1/100 LD50 reduce the level of serum estradiol. Efiasol doses 1/10 and 1/100 LD50 reduced rates of estradiol to 60.28% and 38.72%, Polifos-72 -to 57.51% and 35.69%, Syntaf 10-18 – to 56, 63% and 37.33% respectively. These results indicate that phosphorus complex organic mixtures in appropriate doses can inhibit folliculogenesis and the formation of female secondary sexual characteristics.

Against this background the inhibition of secretion of progesterone (the pregnancy hormone) in yellow bodies was marked. Influenced by Efiasol the
progesterone levels decreased to 48.60% and 35.57%, by Polifos-72 to 42.96% and 30.64%, by Syntaf 10-18 to 38.74% and 16.91%, respectively to groups of animals which were toxificate by 1/10 and 1/100 LD50.

Analysis showed that the decrease in progesterone production may interfere with implantation of a fertilized egg and development of pregnancy. Content of the gonadotropins in serum revealed lower levels of luteinizing hormone, follicle stimulating hormone and prolactin influenced by 1/10 and 1/100 LD_{50}.

During the research it was found that phosphorus detergents can inhibit luteotropins content in blood serum for 50.18% and 37.55% influenced by Efasol. Similar dynamics was typical to others detergents: Polifos-72 reduced the level at luteotropin to 44.57% and 42.11%, Syntaf 10-18 to 48.25% and 35.09%, respectively, in groups of animals which were toxificate by 1/10 and 1/100 LD_{50}. Reduced levels of luteinizing hormone can be combined in violation of ovulation, pregnancy formation of corpora lutea in the ovaries, inhibition of secretion of estradiol and progesterone that occur during prolonged subacute experiments in animals [7].

Follicle stimulating hormone decreased under the influence by Efasol to 51.60% and 34.28%, Polifos-72 reduced the level at 47.71% and 32.16%, Syntaf 10-18 to 41.70% and 24.74%, according to the groups of which were toxificate by 1/10 and 1/100 LD_{50}. Reduced levels of this hormone can affect the growth and maturation of follicles in the ovaries and disrupt the secretion of estrogen and cooperative action of luteotropin and the process of ovulation. It was found the reduction of lactotrop hormone in serum influenced by Efasol to 47.05% and 33.82%, Polifos-72 reduced the level at 40.48% and 42.82%, Syntaf 10-18 at 33.83% and 30.46%, respectively, in groups of animals which were toxificate by 1/10 and 1/100 LD_{50}.

Analysis shows that phosphorus detergents are able to disrupt lactation, the differentiation of various tissues, growth and metabolism [7-9]. At the same time, it should be noted that a dose of xenobiotics 1/1000 LD_{50} do not influence on the content of sexual hormones and gonadotropins in the serum.

**Conclusion**

Thus, complex organic phosphorus compounds - Efasol, Polifos-72, Syntaf 10-18 at doses of 1/10 and 1/100 LD_{50} at long subtoxical action can inhibit the synthesis and secretion of gonadotropins (FSH, LH, PL) and hormones (ED, PG). Under such circumstances the genital dysfunction, disorders of the formation of secondary sexual characteristics, violation of ovarian-menstrual cycle and lactation should be expected.
Thus, in terms of working environment and a significant burden on the body of phosphorus compounds the formation of dysfunction in sexual instinct and mental status in women may be expected.

The analysis shows that a significant inhibition of gonadotropin secretion may be combined with the permeability of the haemato-encephalic barrier for phosphorus complex organic compounds and their direct impact on the hypothalamic-pituitary neuroendocrine complex.

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