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**THE ROLE OF INFLAMMATION MARKERS IN THE EXPIRATION CONDENSATE OF
NEWBORNS WITH PNEUMONIA
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Task: to establish reference values of the levels of oxygen metabolites in the expiratory air condensate (CVC) of newborns without affecting the respiratory system; to determine the levels of nitric oxide metabolites in CVC for pneumonia in newborns and to assess the possibility of their use as markers of inflammation.

Materials and methods of the study: the work was performed on the base of the departments of anesthesiology and intensive care of newborns, pathology of newborns of the regional children's clinical hospital No. 1 in 2014-2017. 48 newborns with pneumonia (the main group) and 20 patients without respiratory system diseases (control group) were under observation. The examination, verification of diagnosis and treatment of newborns with pneumonia was carried out according to the current orders. The KVV was collected by a device of own production. The determination of nitrates (NO₃), nitrites (NO₂) and total (NO_x) was carried out by spectrophotometric method using the Griss-Ilosvaya reagent. Vanadium ions were used to reduce nitrates to nitrites. Results were processed by methods of variation statistics.

Results. Analysis of clinical-anamnestic and laboratory-instrumental data made it possible to diagnose congenital (intrauterine) pneumonia in 16 (33.3%) children, acquired in 34 (70.8%), including ventilation 23 (67.7%) and non-hospital - in 11 (32.3%) patients. Boys predominated among the patients (32 children - 66.7%). The reference values of nitric oxide metabolites in SEM in newborns: NO₂ - $0,18 \pm 0,01$ mg / l, NO₃ - $0,54 \pm 0,02$ mg / l and NO_x - $0,72 \pm 0,02$ mg / l. (NO₂ - $0,79 \pm 0,05$, NO₃ - $0,75 \pm 0,05$ and NO_x - $1,51 \pm 0,08$ mg / l), which indicates a sufficient maturity of the enzyme NO-synthetase systems of the child already in the neonatal regime, proves the presence of such a pathogenetic link in the development of pneumonia in the neonatal period. Sensitivity is 98%, 63% and 94%, specificity is 60%, 65% and 55%, the predictive value of the positive result is 85%, 81% and 83%; the predictive value of the negative result is 92%, 42% and 76% for NO₂, NO₃ and NO_x, respectively. (NO₂ - $0,55 \pm 0,04$, NO₃ - $0,55 \pm 0,03$ and NO_x - $1,10 \pm 0,06$ mg / l) in comparison with the indicators in the acute period. However, if the NO₃ level of CVC in the convalescence results is normalized, then the concentrations of NO₂ and NO_x remain reliable compared to the control, which indicates a later recovery of metabolic disturbances compared with elimination of exudation in the alveoli, confirmed by radiographic examination.

Conclusions: The revealed statistical regularities allow to consider the level of metabolites of nitric oxide KVB as markers of inflammation in pneumonia in newborns, and using it as a diagnostic and prognostic test for monitoring the inflammatory process in the lungs.

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**COMPARATIVE ANALYSIS OF MACRO- AND MICROELEMENTS COMPOSITION OF
AMARANTH SEEDS PRODUCTS**

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Plants and preparations on their bases are valuable sources of macro- and microelements. The biological role of macro- and microelements in a living organism is multifaceted. Minerals are extremely necessary for vital organisms regardless their very small quantities. The lack of any vital element in the body can lead to a complex of functional and organic disorders - bioelementosis. The macro- and microelements activate many enzymatic processes (as a part of enzymes or their activators), and they are necessary for the formation of certain vitamins and hormones. The macroelements support osmotic pressure, pH medium, ionic equilibrium, acid-base balance, the state of colloids, etc.



Plants are the major plank of the ecosystem, which accumulates chemical elements from soils and the atmosphere and binds its components. At present time, some varieties of amaranth are used as cereals, vegetables, forage and ornamental plants. Amaranth (lat. *Amaránthus* L.) - is a cosmopolitan genus of annual flowering plants. The new birth of amaranth began in the XX century, when scientists concerned about rapid population growth and began to search for a plant that can balance the range of food products for human. Today, hundreds of research institutions around the world are engaged in the revival of this ancient plant.

Among the oil-bearing crops, amaranth fairly occupies a unique place. Amaranth seeds contain more protein than wheat, rye, corn, and buckwheat. Amaranth has an adequate balance of essential amino acids (threonine, phenylalanine, tyrosine and tryptophan) and is high in lysine. Amaranth is a very rich source of protein. Amaranth proteins exhibit higher digestibility than other seeds and grains and has been compared to the digestibility of milk protein.

Amaranth is a good source of many essential vitamins including A, C, E, K, B5, B6, folate, niacin, and riboflavin. They act as antioxidants, raise energy levels and control hormones. Amaranth is a very rich source of minerals. It is also a good source of zinc, potassium, and phosphorus. It contains about four times as much calcium as wheat and twice as much iron and magnesium.

The object of our study were Amaranth' seeds, oil and meal after oil extraction. The analysis of quantitative content qualitative composition of mineral substances in the amaranth products was performed by atomic emission spectroscopy.

Analysis of mineral content in amaranth products shows that seeds and meal after oil extraction contain significant amount of K, Ca, Mg, P, Zn and Fe. Seeds and meal after oil extraction have the similar content of potassium, calcium, magnesium, zinc and phosphorous plus almost ten times exceed their content in oil.

The presence of phosphorus in amaranth oil helps to strengthen muscles and improve the performance of muscles, provides and maintains the integrity of teeth and bone tissue. Also, phosphorus is necessary for normal growth processes. Magnesium maintains normal nervous system function. Zinc is useful for people suffering from skin diseases, helps to eliminate inflammation, reduce the amount of rashes, helps fight wrinkles. In the osteoporosis prevention, the effectiveness of magnesium, zinc has been proven. Therefore, minerals are often included in dietary supplements with calcium. Supplements containing these minerals necessary for treatment of bones, joints and spinal column diseases (osteoporosis, arthritis, osteoarthritis, low back pain, arthritis, rickets, etc.). Iron plays an important role in the process of hemoglobin formation in the blood, protect the body from bacteria, takes part in the synthesis of thyroid hormones.

Conclusion. The quantitative content qualitative composition of 15 mineral substances in the amaranth products were studied. Thus, based on conducted studies we can conclude that amaranth' meal is a promising source of minerals and can be used as a food supplement for prevention and treatment of complex diseases.

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**INFLUENCE OF METHYLURACYL OIL TO THE SH-GROUP LEVEL AT THE
EXPERIMENTAL THERMAL BURN**

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The purpose of our work was the determination of sulfhydryl groups in the focus and peripheral blood in the dynamics of experimental burn development and in the treatment with methyluracil ointment.

Burns modeling experiments were performed on 66 WAG rats weighing 200-250 g. The animals were divided into 3 groups: 1 - intact; 2 - animals with thermal burn, without treatment (control); 3 - animals with thermal burn, which were applied methyluracil ointment. To animals of the 2nd and 3rd groups on the shaved area of the back under anesthesia was caused a thermal burn

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