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NIKOLIZIN IN THE CORRECTION OF PROCESSES OF LIPID PEROXIDATION OF BIOMEMBRANES INDUCED BY THE COLD EXPOSURE

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Abstract Cold exposure stimulates the generation of reactive oxygen species that initiate the process of lipid peroxidation (LPO), due to the development of hypoxia, based on the increase in the rate of consumption of tissue oxygen necessary for energy supply, in conditions of increased heat production. The experimental evaluation of the effectiveness of nicolisin for the correction of peroxidation processes induced by the effect of cold, is relevant and opens perspectives in the regulation of various stress factors.

Key words: nicolisin, cold stress, biological membranes lipid peroxidation, products of peroxidation (lipid hydroperoxides, diene conjugates, malonic dialdehyde), antioxidant system.

Modern environmental conditions dramatically increased the level radiculopathic processes in the body [1, 2, 5]. Cold exposure stimulates the generation of reactive oxygen species, inducing peroxidation of lipids, resulting in the development of hypoxia [3, 4].

Materials and methods. In experimental conditions the possibility to correct free radical lipid oxidation of rats' organism membranes was studied with the introduction of the nikolizin. The animals were divided into 3 groups and each of them had 40 rats: intact animals which were held in standard conditions of vivarium; the control group in which rats were exposed to cold during three hours daily; the experimental group in which before cooling animals had a daily intake of the nikolizin in a dose of 30 mg/kg. The intensity of peroxidation processes was assessed by examining the contents of hydroperoxides lipids, diene conjugates, malonic dialdehyde and the main components of the antioxidant system, (ceruloplasmin, vitamin E) in the plasma of blood animals. The results obtained were subjected to statistical analysis with calculation of parametric criteria Student.

It was found out that in the blood of experimental animals a daily cold exposure during three hours contributes to the increase of lipid hydroperoxides level (by 18 – 50%), of diene conjugate (by 33 – 80%), and of malonic dialdehyde (by 22 – 37%) against the decrease of antioxidant system activity in the blood of intact animals. The introduction of the nikolizin to rats in the conditions of cold exposure contributes to the reliable decrease in the blood of lipid hydroperoxides by 14-22%, of diene conjugates – by 26-44%, malonic dialdehyde – by 20-25% in comparison with the rats of the control group. While analyzing the effect of the nikolizin on the activity of the components of antioxidant system it was shown that the level of ceruloplasmin in the blood of animals was reliably higher by 39-57%, of vitamin E by 22-33%, of catalase by 23-33% in comparison with the same parameters of the rats of the control group.

So, the application of the nikolizin in the conditions of long cold exposure of the organism of animals under experiment leads to the stabilization of the processes of peroxidation against the increase of antioxidant system activity.

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INFORMATIVE VALUE OF CYTOLOGICAL STUDY IN THE DIAGNOSIS OF NODULAR MASTOPATHY

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Abstract The aim of the study was to investigate the number of informative and uninformative puncture due to the results of cytology when performing biopsy in terms of diagnosing the nodal mastopathy and making a decision on further treatment tactics. According to the study results uninformative cytograms were reported in 37 women (41.1%). It confirmed the validity of the active tactics of following this group of patients with the use of fine-needle aspiration biopsy of several node sites including those under the control of the ultrasonic sensor, trepanobiopsy and sectoral breast resection followed by pathological examination of surgical material.

Key words: localized fibroadenomatosis, fibroadenoma, nodular mastopathy, fibrocystic mastopathy, fine-needle aspiration biopsy, cytology.

Fine-needle aspiration biopsy followed by cytological examination of the aspirate is one of the methods to confirm nodal form of mastopathy, to establish the degree of proliferative activity of cells in the node, and their possible atypical transformation. The results of this diagnostic method largely influence on a doctor in choosing a medical tactics. According to the literature, if there are no signs of proliferation in cytological study of paracentetic material, it is possible to choose an observation tactics and to start treatment with conservative therapy refusing the sectoral resection of mammary gland [3]. However, the rate of errors of cytological diagnosis in patients with benign formations in mammary glands is known to be up to 7% and uninformative punctures – 18.6%. Mistaken punctures, little number or lack of material are referred to the significant disadvantages [2].

Objective: to determine the number of informative and uninformative punctures at a single-shot fine-needle aspiration biopsy while diagnosing the node mastopathy.

Materials and methods. According to the objective study the examination of 90 residents of the Amur region with localized fibroadenomatosis (mean age 30.6 years) was performed. A fine-needle aspiration biopsy for the standard technique (needle length of 6 cm, a diameter of 1 mm) was made to them. A puncture area was determined on the basis of clinical, echographic and radiological data. The obtained smears were stained by the Pappenheim-Kryukov's method [1].

Results and discussion. As a result of cytology of obtained material the marked proliferation of glandular epithelium was detected in 12 (13.3%) women, moderate proliferation - in 3 (3.33%) patients, the proliferation