

EXPERIMENTAL STUDY OF FRIGOPROTECTIVE PROPERTIES OF DIETARY SUPPLEMENTS "GLUCOSAMINE C BHFZ"

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Introduction. Treatment and prevention of acute cold trauma is one of the most important problems of modern medicine and pharmacy both in peacetime and in wartime, and requires in-depth study of the mechanisms of adaptation to low temperatures. Cold trauma refers to serious bodily injury is an important cause of disability

In recent years, there is a clear trend towards increasing the number of injured victims of the cold in temperate regions. Every year in Ukraine recorded more than 12 000 such cases in Russia, more than 20000. Most of the victims of the cold need hospital treatment, mortality exceeding 10%.

Hypoxia of the brain and other organs, disorders of the central nervous, cardiovascular, respiratory, excretory, endocrine system, gastrointestinal tract and skin involved in the pathogenesis of acute cold trauma. The nature of these violations makes the complexity of treatment and the total cooling effects.

Thus, the search for new drugs with frigoprotective properties is the actual problem of modern pharmacology. Previous studies have found that glucosamine Hydrochloride and ascorbic acid have frigoprotective action. Glucosamine is an important component of biological membranes, he found in significant quantities in the brain, kidneys, liver and skin, has rich pharmacodynamics, at first, anti-inflammatory and chondroprotective properties. Vitamin C (ascorbic acid) has metabolic action, is involved in the regulation of redox processes, carbohydrate metabolism, blood coagulation, tissue regeneration, increases resistance to infection, reduces vascular permeability. Has antiplatelet and distinct antioxidant properties, regulate immunological reactions promotes phagocytosis, increases resistance to infections.

Aim. The aim of this work is the experimental study of the influence of dietary supplements "Glucosamine C BHFZ" which contains glucosamine hydrochloride and ascorbic acid, and its components on life expectancy of mice with acute general cooling.

Materials and methods. For the modeling of cold injury mice were placed in individual plastic canisters size $8 \times 8 \times 15$ cm, which do not restrict access of air, to the freezer «Nord Inter-300" at -18°C .

«Glucosamine C BHFZ» (82.5 mg/kg) and comparisons glucosamine hydrochloride (50 mg/kg) and ascorbic acid (4 mg/kg) were administered

intragastrically in preventive regime before 30 minutes to reproduce the model of pathology. The animals in the control group injected with 0.9% solution of NaCl. The indicator of frigoprotective action of these substances was the life of mice in acute general cooling.

Criteria Student's using for statistical analysis of the results in the case of normal distribution or nonparametric criterion W White - in his absence. The difference was considered statistically significant at $p < 0.05$.

Results and discussion. Determined that "Glucosamine C BHFZ", at a dose of 82.5 mg/kg significantly increased the life of the animals by 33% compared to the control group pathology. Under the influence of glucosamine hydrochloride 50 mg/kg of mice on a background of acute cold injury significantly prolonged by 33.5%, compared to the control disorders. Ascorbic acid at a dose of 4 mg/kg in animals with acute cold injury significantly increased life time by 20.2% compared to the control group pathology.

The results indicate about frigoprotective action of dietary supplement "Glucosamine C BHFZ" and glucosamine hydrochloride, the severity of which are significantly dominated by ascorbic acid. Frigoprotective effect of these substances can explain their anti-inflammatory, cerebroprotective properties that are associated with exposure to the neurotransmitter and metabolic processes in the brain, improving its blood supply, a possible positive effect on systemic blood circulation, microcirculation and energy metabolism and so on. In response to the stress involved in almost all body systems, but more stress associated with the chain of hypothalamic-pituitary-adrenal and immune system. Vitamin C plays a crucial role in the synthesis of steroids, which are important in the mechanism of resistance when cold injury. Thus, the adrenal glands of dead people from the general cooling of ascorbic acid completely absent. Vitamin C is also important for the formation of norepinephrine - the mediator of the sympathetic nervous system activation which is involved in stress reactions, it is cold injury. These aspects of the mechanism of action of ascorbic acid explain its protective effect we found for acute general cooling.

Conclusions. Dietary supplement "Glucosamine C BHFZ" at a dose of 82 mg/kg has expressive frigoprotective effect, increasing the life of mice against a background of acute general cooling by 33%. Protective action of dietary supplements "Glucosamine C BHFZ" due mainly effect of glucosamine hydrochloride, which at a dose of 50 mg/kg increased the life of animals by 33,5%. Ascorbic acid has moderate frigoprotective effect. The results obtained experimentally substantiate the expediency of dietary supplements "Glucosamine BHFZ C" in the treatment of acute cold injury.