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Criterional complex of blood system reactions system forecasting in the conditions of inflammation and effects of substance P blocking

Substance P is the main tachykinin involved in the implementation of inflammatory processes, promoting plasma extravasation, leukocyte infiltration, angiogenesis and generalization of inflammation [2, 3]. These effects are primarily due to the synthesis of such pro-inflammatory cytokines as interleukin 1, interleukin 6, interleukin 8, tumor necrosis factor alpha under the influence of substance P [1, 4, 5, 6, 7]. But the most important in the interaction of substance P with immune cells is the intercytokine and interreceptor interaction, which modulates the activity of substance P [8]. Thus, the unsolved problem today is to develop a criterional complex of blood system reactions system forecasting in the conditions of inflammation and effects of substance P blocking.

The **aim** of the study was to develop the criterional complex of blood system reactions system forecasting in the conditions of inflammation and effects of substance P blocking.

Material and methods. The randomized prospective controlled experimental study was performed on 132 WAG rats. In the dynamics of experimental inflammation studied the reactions of the blood system (cell-tissue reactions of the inflammatory focus, bone marrow hematopoiesis, leukocyte reaction of peripheral blood, serum concentration of tumor necrosis factor α, interleukin 6, C-reactive protein) in the natural course of carrageenan secondary and chronic substance P. A carrageenan model of inflammation was selected, using 10 mg of α-carrageenan (Sigma, USA) in 1 ml of saline [9], which was injected intramuscularly into the rat thigh under thiopental anesthesia. To inhibit the synthesis and effects of substance P NK-1R inhibitor aprepitant was used, which was administered intraperitoneally at a dose of 10 mg dissolved in 1 ml of isotonic sodium chloride solution, daily throughout the experiment [10]. To exclude the influence of natural circadian rhythms on the indicators, the experiment was performed in the autumn-winter period in a standardized way in the morning. Rats in the control series remained

intact for inflammation during the experiment or were only administered the drug and kept under constant standard conditions. Experimental rats of intervention series in accordance with the tasks were subject to modeling of inflammation and the use of a pharmacological drug - an inhibitor of NK-1 receptors of aprepitant. Stratification of animals in separate series was carried out in the amount of 6 individuals. Non-parametric statistics was used with critical p 0.05. A multi-factorial methods of statistic analysis were performed.

Results and discussion.

Factor analysis, modeling using discriminant analysis allowed to detect the power, significance of different parameters and elaborate the criteria included the most powerful factors with the maximal predictive value in terms of prognosis of an inflammation chronization.

An additional beneficial product of the study concerns the management of inflammation and prevention of its chronization.

Thus, the criterional complex of blood system reactions system forecasting in the conditions of inflammation and effects of substance P blocking has been developed which widens the pathophysiolowith potential and has multiple practical applications in different fields of medicine and biology.

Conclusion:

1. The developed criterional complex of blood system reactions system forecasting in the conditions of inflammation and effects of substance P blocking has been developed.

2. The practical application of the developed criterional complex of blood system reactions system forecasting in the conditions of inflammation and effects of substance P blocking is required, with detection of its efficacy.

The prospects of further research is efficacy evaluation of the practical application of criterional complex of blood system reactions system forecasting in the conditions of inflammation and effects of substance P blocking.

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