PREVENTION OF DISSEMINATED PERITONITIS IN DESTRUCTIVE CHOLECYSTITIS

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ABSTRACT

Destructive cholecystitis is a serious inflammatory disease of the gallbladder, characterized by rapid progression and a high risk of complications such as peritonitis and sepsis. Given the increased incidence of the disease and the significant number of severe cases, studying its pathogenesis is particularly relevant. [1,4].

Relevance. Destructive cholecystitis is a serious inflammatory disease of the gallbladder, characterized by rapid progression and a high risk of complications such as peritonitis and sepsis. Given the increased incidence of the disease and the significant number of severe cases, studying its pathogenesis is particularly relevant. [1,4].

Understanding the mechanisms of immune system activation, including the role of cytokines, complement, and cellular components of immunity, is essential for the development of new diagnostic approaches. Current knowledge suggests that local inflammation, systemic inflammatory response syndrome (SIRS), sepsis, severe sepsis, and multiple organ failure, which develop during bacterial infection, are distinct links in the body's response to inflammation [2,3].

The aim of the study. To study the results of a study of immunological changes characteristic of destructive cholecystitis.

Materials and Methods. The study included 91 patients with a confirmed diagnosis of destructive cholecystitis admitted to the surgical department. Patients with concomitant systemic diseases (diabetes mellitus, autoimmune diseases) and a history of chronic inflammation, which could affect immunological parameters, were excluded.

The control group consisted of 20 healthy volunteers matched for age and gender. Participants in the control group had no chronic diseases and had not taken medications that could affect the immune system within the past three months.

Result and discussions. The data obtained confirm the presence of pronounced immunological changes in destructive cholecystitis. Increased levels of proinflammatory cytokines, activation of the complement system, and changes in the blood cellular composition indicate activation of both innate and adaptive immunity.

Patients with destructive cholecystitis showed significantly elevated levels of IL-1β, IL-6, IL-8, and TNF-α compared to the control group ($p < 0.01$). These changes indicate a pronounced systemic inflammatory response. Increased IL-6 levels correlated with the severity of the patients' clinical condition, confirming its role in the pathogenesis of the disease.

Thus, in patients with SIRS and acute calculous cholecystitis, a cytokine imbalance has been identified, the severity of which depends on the number of criteria and the presence of sepsis. Surgical intervention in the presence of cytokine imbalance during basic conservative therapy does not lead to its correction, therefore, adequate pharmacological correction is required.

Correction of oxidative stress in destructive cholecystitis reduces the process of destructive changes and is accompanied by normalization of antioxidant status both at the systemic and local levels.

Our studies have shown that the most significant dynamic correlations between the studied cytokines and superoxide dismutase in wound fluid are IL-1β/SOD and IL-4/SOD.

Conclusion. Immunological changes in destructive cholecystitis include activation of proinflammatory cytokines, the complement system, changes in lymphocyte subsets, and pronounced oxidative stress. These processes play a significant role in the pathogenesis of the disease and can be used as targets for the development of new diagnostic approaches.

Literature:

1.Sh AA et al. The Role of Oxidative Stress and Cytokine Imbalance in Destructive Cholecystitis //International Congress on Biological, Physical And Chemical Studies (ITALY). – 2025. – T. 8. – P. 71-73.

2.Sh AA et al. Immunological Changes in Destructive Cholecystitis //International Congress on Biological, Physical and Chemical Studies (ITALY). – 2025. – T. 8. – P. 68-70.

3.Abdullakulov UM, Abdumajidov A., Zuparov KF Analysis of hemostatic and antimicrobial properties of hemoben and ceftriaxone after gallbladder removal //SCIENCE. – 2025. – T. 4. – No. 1-4. – pp. 112-115.

4.Ismailov FM, Zuparov KF Predicting the severity of peritoneal complications in patients with perforation of hollow organs //SCIENCE. – 2025. – T. 4. – No. 1-4. – pp. 129-132.