

F. F. Hrynychuk

Supervisor : R.E. Bulyk , MD, professor

Bukovinian State Medical University

Language tutor: O.S. Demianchuk

CHANGES IN CYTOKINE STATUS UNDER CONDITIONS OF INFLAMMATION IN THE PERITONEAL CAVITY

The progressive, unlimited inflammation of the parietal and visceral peritoneum is called acute peritonitis. It is one of the best examples of transformation inflammation from the protective response to pathological [3]. In this regard, it is actual to explore some features of such inflammations [2]. An exploration of factors that affect the function of the immune system, particularly cytokines, plays an important role [1].

For this purpose, in our experiment, we have taken 60 white, nonlinear rats and explore content of interleukins 2, 6, 10 and tumor necrosis factor α in plasma of venous blood during 72 hours. Peritonitis modeled by the input of intraperitoneal 20% self faeces mixture.

In the result it was revealed that initiation of inflammation in the peritoneal cavity caused an increase of the content of the studied cytokines. This points to the natural activation of protective systems, directed to the fighting with the microflora, which caused the inflammation.

On the early stages (up to 12 h. of simulation time) the development of the inflammation was accompanied by signs of adequate reaction of protective systems – the consistent inclusion of nonspecific resistance and specific immune reactivity.

Further progression of the inflammation (24 h.) took place against the background of the manifestations of cyclical changes in the activity of various parts of protection that can be associated with changes of the etiological factors of the inflammation.

In 48 hours after the beginning there were identified early signs of the immune disorders that were manifested by disorders in the ratio between the studied cytokines. This proves the development of the imbalance between pro- and anti-inflammatory factors.

Later, in 72 hours, the identified processes became more acute. Changes in ratios of investigated cytokines pointed on the development of "cytokine storm", in which an interleukin – 2 played the leading role.

To sum up we can say, that sequential activation of non-specific and specific immune mechanisms appears during the initial period of the inflammation in the peritoneal cavity. Progression and spreading of inflammation occurs on a background of signs of immune disorders. There is unbalanced production of pro- and anti-inflammatory cytokines, appearing of the "cytokine storm" [1], which contributes to the further progression of the inflammatory process.

LITERATURE

1. Circulating mediators and organ function in patients undergoing planned relaparotomy vs conventional surgical therapy in severe secondary peritonitis / N. Zugel, M. Siebeck, B. Geisslev [et al.] // Arch. Surg. – 2012. – Vol.137, № 5. – P. 590-599.
2. Factors affecting mortality in generalized postoperative peritonitis: multivariate analysis in 96 patients / S. Mulier, F. Penninckx., C. Verwaest [et al.] // World. J. Surg. – 2013. – Vol.7, №4. – P.379-384.
3. Proske J.M., Franco D. Acute peritonitis / J.M. Proske, D. Franco // Rev. Prat. – 2014. – Vol.55, №19. – P.2167-2172.