

DECREASE IN THE DYNAMICS OF INFLAMMATORY PROCESS IN CASE OF PURULENT PERITONITIS WHEN USED OZONIZED PHYSIOLOGICAL SOLUTION

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Introduction. One of the important components of antimicrobial protection in peritonitis is the system of phagocytic cells of the peritoneal fluid (PF), with which microorganisms that enter the peritoneal cavity interact. Therefore, along with lavage, stimulating this line of defense is of great small importance.

Purpose. We propose an intraperitoneal infusion of ozonized saline solution, since medical ozone has not only bactericidal, but also immunomodulatory effects.

Material & Method. The studies were carried out on white male rats 3-4 months of age, weighing 140-160 g. After reproducing the model of fecal peritonitis according to S.S. Remennik (1966), animals 1st series were injected with ozonized physiological solution into the abdominal cavity at the rate of 2 ml per 100 g of mass, and in the 2nd – physiological solution. The cell composition of the peritoneal fluid was studied by us on the 1st, 2nd, 3rd, 7th and 14th days of the experiment using the hardware-software complex “MEKOS-Ts1”. Peritoneal swabbings were stained according to Romanovsky-Giemsa in our modification. Statistical processing was carried out using the computer version (4.03) of the program “Biostat” & criteria used is χ^2 .

Research: On days 1-3, the Respiratory rate in rats of the 1st series was $132 \pm 5.7/\text{min}$, the hair was tousled, they were inactive. By the 7-14th day in surviving rats (80%), these manifestations are almost normalized.

On the 1st day, the number of neutrophils increased by more than 3 times (up to 13.56 ± 0.87) and eosinophils ($p < 0.05$). In the cytoplasm of macrophages, fragments of nuclei are visible. On the 3rd day, the cell density of the exudate decreases (to 16.22 ± 1.56 ; on the 1st day it averaged 31.67 ± 2.61 on the smear area - $8000 \mu\text{m}^2$). On the 14th day, the cellular composition approaches that of the control rats.

In the second series, on days 2-7, a mass death of animals was noted (up to 56%). On the 1st day, the number of neutrophils and monocytes increases approximately 4.5 times, eosinophils and destructive cells - more than 10 times. The smears increased the number of fibroblasts (up to 3.22 ± 0.66) and destructive cells (up to 7.67 ± 1.23). On the 3rd-7th day, the proportion of destructive cells increases sharply (up to 40.6% or more) against the background of a clear decrease in the number of neutrophils. Acanthocytes and cocci with coli in fibrin accumulations are detected in all fields.



Figure 1. – Macroscopic picture of the abdominal organs of the rat on the 7th day after the introduction of ozonized solution against the background of the development of acute fecal peritonitis. The lymph nodes of the abdominal cavity are edematous, the lymphoid plaques are swollen, the small intestine is spasmodic



Figure 2. – Macroscopic picture of the abdominal organs of the rat on the 14th day after the introduction of physical solution against the background of the development of acute fecal peritonitis. Adhesive conglomerate, in which the abdominal organs and rounded dense-elastic formations with thick pus are walled up

Results:

Series no 1	Series no 2
No used 25	NO used 25
5(died)	14(died)
20(survived)	11(survived)
Mortality rate (20%)	Mortality rate (56%)

Conclusion: Intra-abdominal administration of ozonized saline in peritonitis helps to reduce mortality and delays the spread of inflammation along the peritoneum.

1. Experiment of ozonized saline solution in purulent peritonitis on rats.
2. Ozonized saline has bactericidal and immunomodulatory properties.
3. Delays the spread of inflammation along peritoneum.
4. Decreased mortality rate by 36% in Experiment as compared to normal saline solution.