**INFLUENCE OF SODIUM DESOXYRIBONUCLEATE ON ANTI-WAR-FECTIONAL PROTECTION AND BLOODING IN SUFFICIENTS WITH POLYTRAUMA**

**Pivovarova L.P., Gromov M.I., Tulupov A.N., Lapshin V.N., Osipova I.V., Ariskina O.B., Nikitin A.V., Malyshev M.E., Markelova E.V.**

*Sain-Petersburg I.I. Dzhanelidze Research Institute of Emergency Medicine, St. Petersburg, Russian Federation*

**Аbstract.** A single-center, double-blind, placebo-controlled study of the effectiveness of sodium deoxyribonucleate was performed in 54 patients with polytrauma. Main group: 27 people (21 men / 6 women, age 39 (29; 51) years, severity of injury ISS 26 (22; 34) points, severity of shock ± T = +12.9 (8.7; 15.9) hours). Comparison group: 27 people. (20 men / women 7, age 40 (26; 53), ISS 25 (20; 29), ± T = + 12.3 (9.3; 13.8)). Sodium deoxyribonucleate is a low molecular weight fragments of native DNA. Randomization: patients with a random even number were injected with the contents of vials of one series (even), with odd - of an odd series. 75 mg of sodium deoxyribonucleate (5 ml) or placebo (5 ml) was administered intramuscularly daily for 10 days, starting from the day after the injury. Before the first injection of the drug, on the 8th, 15th days after the injury, the blood was examined: white blood cells (·109/l), red blood cells (·1012/l), blood IL-6 (pg/ml), CRP (mg/l); CD117 + and CD34 + mononuclear cells, CD14 + monocytes and CD14 + granulocytes, HLA-DR + mononuclear cells (·109/l), defensin + granulocytes (human neutrophil peptides, HNP1-3) (%). Hemoglobin (Hb) and total protein (TP) (g/l) in the blood were examined during the entire hospital stay. On the 8th day after the injury in patients of the main group compared with the comparison group increased: the number of lymphocytes (2.36 ± 0.19/1.83 ± 0.18; p = 0.048), monocytes (0.89 ± 0.007/0.69 ± 0.007; p = 0.049), CD117+ (0.81 ± 0.07/0.44 ± 0.07; p = 0.000) and CD34+ (0.83 ± 0.07/0.65 ± 0, 05; p = 0.042) of mononuclear cells. On the 15th day, the achieved increase in the number of monocytes (0.65 ± 0.07/0.46 ± 0.05; p = 0.033) remained in the patients of the main group and CD14+ monocytes (0.38 ± 0.03/0.24 ± 0.02; p = 0.041), HLA-DR+ mononuclear cells (1.34 ± 0.12 / 1.04 ± 0.08; p = 0.044) and defensin+ granulocytes (42.0 ± 2.4/34.3 ± 3.7; p = 0.044) increased in comparison with the comparison group. In patients of both groups, the concentration of IL-6 was similarly reduced (1st day – 115 ± 14 / 134 ± 14; p = 0.343; 8th day – 51 ± 7 / 74 ± 9; p = 0.049; 15- e day – 25 ± 3 / 29 ± 5; p = 0.496) and CRP (1st day – 69 ± 6 / 84 ± 8; p = 0.141; 8th day – 82 ± 13 / 82 ± 12 ; p = 1,000; 15th day - 21 ± 4 / 35 ± 7; p = 0.090). The clinical effect consisted of a reduction in hospitalization (in the main group - 32.8 days, in the comparison group - 39.6 days), a decrease in the number of complications (in the main group - 21, in the comparison group - 39). In both groups, subgroups of patients with complications were identified (13 people in the main group and 14 in comparison). In the subgroup of the main group, the average number of complications in one patient was 1.8 times less than in the compared subgroup. Complicated patients differed in the duration (in days) of anemia (main group / comparison group Hb < 90 g/l: 3.2 ± 1.3 / 7.9 ± 2.1; p = 0.044) and hypoproteinemia (main group / comparison group TP < 60 g/l: 8.2 ± 2.2 / 19.5 ± 4.1; p = 0.034). The use of sodium deoxyribonucleate in patients with polytrauma helped to strengthen the migration of hematopoietic precursors (CD117 + and CD34 +) from the bone marrow into the bloodstream, increase the anti-infective properties of blood cells, reduce the duration of anemia and hypoproteinemia, and reduce the number of complications and the duration of hospitalization.

*Key words: polytrauma, anti-infection protection, hematopoiesis, hypoproteinemia, complications, sodium deoxyribonucleate.*