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Early immuno-substitution therapy for severe multiple injury

Shabanov A K^{1,2}, Bulava G V¹, Kuzovlev A N², Kisluhina E V¹ and Khubutia M Sh¹¹N V Sklifosovsky Institute of Emergency Medicine, Russia²Federal Research and Clinical Center of Intensive Care Medicine and Rehabilitology, Russia

Introduction: Severe multiple traumas are the main non-specific factor that causes early immune imbalance, which in turn acutely increases the risks of development of infectious complications in the affected areas. In a comparative individual analysis of deviations in the values of immunogram parameters, more than a third of victims with severe multiple trauma, an imbalance in hypoergic or hyperergic type is observed already on the first day. Currently there are nearly no data justifying the conduction of early immunosuppressive therapy at early stage of multiple trauma and to assess its impact on the development of nosocomial infection and the parameters of immune system.

Aim of the Study: Evaluation of the effectiveness of early immunosubstitution therapy (IST) in patients with severe multiple trauma (SMT).

Materials & Methods: 225 patients with severe co-occurring trauma (ISS>30 points) were examined. The mean age was 35.5±14.1 years. Depending on the use of early IST therapy with donor IgG (daily for the first three days) patients were split into two groups: the first- 126 patients with standard intensive treatment supplemented with IST; the second-99 victims, who did not receive IST. Immunological examination was performed on days 1, 3, 6 and 9 after trauma. The relative and absolute number of lymphocytes of the main populations were determined: (CD3+)-T lymphocytes and (CD19+)-B lymphocytes; T cell subpopulations: (CD4+) T helper and (CD8+) T cytotoxic lymphocytes, concentration of immunoglobulins class A, G, M (IgA, IgG, IgM); absorbing and bactericidal activity of neutrophils; serum content of circulating immune complexes: large, medium and small, as well as concentration of C-reactive protein (CRP) and procalcitonin (PCT). In both groups the severity of the condition was assessed according to the APACE-II scale (in dynamics), duration of mechanical ventilation, incidence of nosocomial pneumonia, CPIS score (in dynamics) and outcome.

Results: The study showed that in the group of victims who received IST the need for prolonged mechanical ventilation was 1.7 times less infectious complications developed 1.4 times less, the signs of nosocomial pneumonia decreased on the CPIS scale and the mortality decreased by 1.6 times. The favorable course of the posttraumatic period was expressed in the improvement of the APACE-II scale and the reduction of the ICU stay for more than 7.5 days.

Conclusion: The use of early immunosuppressive therapy in the treatment of patients with severe multiple trauma reduced the duration of mechanical ventilation and the incidence of nosocomial pneumonia, which in turn reduced mortality in the investigation group.

Biography

Aslan Shabanov, MD, with the higher qualification. Senior researcher in the intensive care unit. General seniority in this field is 22 years. He has been working: as a reanimatologist since 1997. Also he have been into emergency medical helicopter group since 2002.

Achievements: Development of diagnostic methods and treatment of patients with severe polytrauma, which provides proper improvement of the treatment.

aslan_s@mail.ru

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