Immune forecast of sepsis: Immunological treatment and prevention

Zemskov V M
Professor, Vishnevsky Surgery Institute, Russia

When studying the pathogenesis of burn sepsis, it is necessary to identify those changes in the parameters of the immune system that contribute to the development of a septic complication and are characteristic of it. We first studied for sepsis in 85 patients with burns and 16 volunteers (reference group) a large panel of phenotypic constitutive and activation cell markers and established a quantitative formula for its prognosis, determining a deep deficit of lymphocytes (<9.3%), natural killers (<5%), HLA-DR+monocytes (<50%), IgG (<6g/L) and a sharp increase in rod-nuclear neutrophils (> 21%), endogenous intoxication index (>4 units) and CD64+granulocytes (90-100%), which allowed predicting sepsis in 33.3% of patients for 1-2 days, in 41.7% for 3-4 days, for 16.7% for 5-7 days and for 8.3% for 2 weeks before the clinical diagnosis was made. The coincidence of the clinical and immune diagnosis in patients with sepsis and without it was 100%. We examined 61 patients with burn disease in the stage of burn toxemia and burn septicotoxemia (burn area >30% body surface). Patients with sepsis received 10 days of gabriglobin (Russian IgG) for 2.5g/day, in order to prevent generalization of infection, a 5-days course of the drug. In the control groups with burns, patients with gabriglobin did not receive. The drug reduced the hyperactivation of the immune system (O2-metabolism of phagocytes, CD70+ lymphocytes , neutrophils, monocytes, CD64+ granulocytes, HLA-DR+T-Lph, endogenous intoxication), eliminated the deficit of immune markers (lymphocytes, B cells, T-Lph, natural killers, cytotoxic T-Lph, IgG). Those immunoglobulin G normalized not only IgG deficiency but had a powerful immunomodulatory effect. It was also clinically effective (reducing the severity of the clinical condition, temperature, respiration rate and pulse, leukocytosis, proteinuria, procalcitonin and increasing blood pressure, proteinemia, and thrombocytopenia) with sepsis at 78.75% (traditional therapy without IgG had efficacy in 32% of patients), in the prevention of generalization of infection in 72.34% (traditional therapy without IgG had efficacy in 37%).

Speaker Biography

Zemskov V M has completed his PhD from Academy of Medical Sciences and MD Postdoctoral studies from Second Moscow Medical Institute. He is the Chief of Clinical Immunology group of Vishnevsky Institute of Surgery. He has published more than 200 papers in reputed journals, 42 monographs and textbooks for medical students and has been serving as an Editorial Board Member of three Russian and six foreign journals. He is an Academician of Russian Academy of Natural Sciences, Russian Academy of Medical and Technical Sciences, honored Scientist of Russia, winner of the Russia Government Prize. He is a Professor of Immunology and Allergology.

e: vzemskov@facecontrol.biz

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