STATE OF SYSTEMIC IMMUNITY IN PATIENTS WITH DESTRUCTIVE PULMONARY TUBERCULOSIS WITH DIFFERENT LEVELS OF SERUM GAMMA-INTERFERON

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Abstract

The *aim* of this study was to examine the state of systemic immunity in patients with destructive pulmonary tuberculosis (DTBL) with different levels of serum interferon-gamma (γ-IFN) for the development of the principles of rational γ-IFN treatment.

Materials and methods. A comparative analysis of the state of T-and B-cells, NK-cells and phagocytes was performed in 22 patients with high levels of γ-IFN and in 48 patients with the referential and low level of γ-IFN. Flow cytometry and EIA were used.

Results. It was shown that adaptive immunity in DTBL patients with high γ-IFN levels was characterized by leukocytosis, increased proliferative T-cells response to BCG, high level of IgA, IgM and IgG, circulating immune complexes and anti-TB IgG-antibodies levels. In this group high blood NK and low phagocytic granulocytes quantity were detected. Increased of granulocytes and monocytes spontaneous production of reactive oxygen species (ROS) was found in every second patient with high γ-IFN level. This was accompanied by a decrease of zymosan-induced ROS production.

In DTBL patients with the referential and low γ-IFN level the increase of the relative lymphocytes number occured five times more frequently than in patients with high γ-IFN level (22,9 % and 4.5 %, respectively; $p < 0,02$). Frequency of the absolute content of cytotoxic T-cells reduction was two times higher than in comparison group (39,6 vs 18.2 %; $p < 0,05$). Depression of specific anti-TB immune response in 54.8 % patients of this group was accompanied by a negative result of blastransformation lymphocyte reaction with BCG and in 72,9 % – by inhibition of specific antibody synthesis. High content of small serum circulated immune complexes was observed in 89,4 %. In every second patient high spontaneous ROS production by granulocytes and monocytes was determined despite of insufficient blood γ-IFN level. In every third patient the metabolic response to phagocytes stimulation remained high. This indicated the sufficient activity of these cells and required no immunostimulators.

Conclusion. The major indications for interferon treatment in DTBL patients with referential and low γ-IFN levels are decreased cytotoxic T-lymphocytes and NK-cells number, inhibition of lymphocytes BCG proliferative response, low levels of anti-TB antibodies, inhibition of spontaneous ROS phagocytes production and its poor bacterial stimulation.

Key words: destructive pulmonary tuberculosis, interferon-gamma, systemic immunity.

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