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***Khakimova I.T.***

*Department of Phthisiatry and Pulmonology, Microbiology, Virology, and Immunology*

*Assistant Andijan State Medical Institute.*

# AFFECTS OF ACUTE PNEUMONIA THE LEVEL OF CHILD MORTALITY

**Abstract.** Acute pneumonia (hospital-acquired - nosocomial and community-acquired) remains one of the most common diseases in the world and affects the level of child mortality [1]. The study of the etiology, pathogenesis, treatment and prevention of this disease continues. In the last ten years, the understanding of this disease has changed significantly both in our country and abroad, which has allowed us to significantly improve diagnostics and treatment [2]. The study of the immunological aspects of the pathogenesis of nosocomial pneumonia is necessary for the most effective diagnosis, prevention and treatment of the disease. This is due to the increase in the frequency of nosocomial pneumonia in children, as well as constant changes in the immune response and the body's response.[4]

**Key words:** Immunological aspects, nosocomial pneumonia, children

The **aim** of the study isStudy of the immune system in case of nosocomial pneumonia in young children.

**Material and methods.** In the Department of Emergency Pediatrics and the Intensive Care Unit of the Andijan Scientific Center of Emergency Medicine, we observed 28 children aged three months to three years with nosocomial pneumonia. Based on the main clinical signs (fever, symptoms of respiratory failure and toxicosis), as well as radiological and immunological data, the diagnosis of nosocomial pneumonia was established during the first two nights of the child's stay in the hospital (ICU). Due to the fact that their condition worsened on the 7th-10th day of the disease, all children were sent to other hospitals. The control group included twelve healthy children of comparable age who were observed at the Institute of Immunology of the Academy of Sciences of the Republic of Uzbekistan. In both groups, peripheral blood lymphocytes of patients were studied. Monoclonal antibodies CD3, CD4, CD8, CD16, CD19, CD25 and CD95 were used for lymphocyte phenotyping.

**Results and discussion.** Children underwent immunological tests on days 3-5 after admission to the hospital. In young children suffering from nosocomial pneumonia, changes in a number of immune system parameters were detected (table). In the peripheral blood, the relative number of T-lymphocytes was 51.3 ± 2.12% against the background of leukocytosis and lymphocytosis, which was significantly lower than the control level of 59.7 ± 0.58%.

Despite the suppression of T lymphocytes, the absolute number of T lymphocytes was significantly higher in the group of children with nosocomial pneumonia. This is clearly associated with leukocytosis in children with obstruction (2254.5 ±169.22 in 1 µl compared with 1098.0 ±17.30 in 1 µl in the control group).

When studying the subpopulation composition of lymphoid cells in the children we examined, changes in the functional activity and redistribution of lymphocyte subpopulations were revealed. Further studies revealed the reliability of differences in the expression of the CD4+ marker on lymphocytes. When studying the relative and absolute content of T-helpers/inducers, it was revealed. a significant decrease in the number of CD4+ cells on average to 25.1±0.61%, which is 1.5 times lower than the control values (pThe absolute number of CD4+ cells significantly increased to 1103.2±86.38 in 1 µl (in the control 885.6±29.43 in 1 µl). It is known that CD4+ lymphocytes are responsible for the

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initial stage of development (initiation) of the immune response to almost all antigens (bacterial, viral, tissue). It is known that CD8+ lymphocytes are able to recognize a foreign antigen only together with their own molecules of this class. We found that in the blood of healthy children, the relative number of T suppressors/cytotoxic lymphocytes was 20.2±0.36%, absolute quantity – 435.1±20.72 in 1 μl. In children with nosocomial pneumonia, the relative content of CD8+ cells was not statistically different, and their absolute content was significantly different from the indicators of the control group, amounting to 826.3±58.76 in 1 μl. Consequently, in nosocomial pneumonia, a decrease in the relative content of T-helpers is observed, and the content of T-suppressors does not change, which explains the decrease. It follows that severe cellular immunodeficiency is associated with an imbalance in the cellular link of immunity, which was characterized by reliable changes in the main subpopulations of the immune system - CD4+ and CD8+ cells. The relative and absolute content of CD16+ lymphocytes in children with nosocomial pneumonia in the peripheral blood was 9.0±0.74% and 395.6±22.56 in 1 μl, respectively (in the control 13.5±0.28% and 287.6±18.23 in 1 μl). Apparently, such suppression of natural killers is due to an increase in immature forms (absolute quantities) of these cells in the peripheral blood. During the immune response, B-lymphocytes (CD19+) differentiate into plasma cells that secrete antibodies. B-lymphocytes can develop an adequate immune response only with the help of T-helpers. In our studies, the relative content of B-lymphocytes in the peripheral blood of children with nosocomial pneumonia significantly differed from the control - 28.8±0.48%. The absolute value of this indicator also statistically significantly increased from the control values and was determined within the range of 1265.8±86.79 in 1 μl (in the control 511.2±25.21 in 1 μl

Thus, In young children, secondary immunodeficiency occurs in nosocomial pneumonia[3]. Against the background of leukocytosis and lymphocytosis, the total number of T-lymphocytes (CD3+), T-helpers/inducers (CD4+), natural killers (CD16+), CD95+ cells (with a receptor for apoptosis), as well as the relative and absolute number of B-lymphocytes (CD19+), as well as the level of immunoglobulins of classes A and M, are significantly reduced. There is a tendency for the level of IgG, CD8+ and CD25+ cells to decrease.

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