SOLUBLE FORMS OF MEMBRANE PROTEINS OF IMMUNE SYSTEM CELLS IN BRONCHIAL ASTHMA IN CHILDREN

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Annotation. Bronchial asthma is a classic example of immunopathology and is a common chronic lung disease in children. The intensity of the immune response to the introduction of a foreign antigen (AG) depends on many factors, such as the functional state of the body, its genetic characteristics, as well as the properties of the AG itself, the dose and the scheme of its introduction (60, 71). The issues of regulating the immune response are of particular importance in connection with the need to ensure the formation of reliable post-vaccination immunity. At present, there is an increase in both acute and chronic infectious diseases. One of the main and reliable methods of preventing the spread of infectious diseases is vaccination. Persons with long-term diseases (chronic inflammatory and infectious diseases, hepatitis, tuberculosis, HIV infection, chronic renal pathology, persons on hemodialysis, etc.) constitute a risk group that is most susceptible to infections and should be vaccinated first. The need to vaccinate people with chronic pathology is also due to the fact that certain viral vaccines not only create anti-infective immunity, but also prevent the development of oncological diseases that occur under the influence of a viral infection (with vaccination against hepatitis B, primary liver cancer is prevented). It is known that people with manifestations of immunodeficiency are most at risk of developing viral infections (60, 91).

Over the past decades, its prevalence has increased worldwide, as well as the number of children with severe forms of the disease. Among schoolchildren in Russia, the incidence of asthma is 3-12%. Many specialists recognize the potentiating role of respiratory viral and bacterial infections in the aggravation of bronchial asthma and the development of its exacerbations. In particular, this applies to such pathogens as cytomegalovirus and Mycoplasma pneumoniae. Mycoplasma infection in children with asthma is 66-88%, and mixed viral-mycoplasma infection is observed in 40-42% of sick children. Infectious microorganisms often persist in the mucous membrane of the respiratory tract and can affect the functional state of the immune system of patients with bronchial asthma.

To study the nature of changes in the serum level of soluble forms of membrane antigens of immune system cells in relation to the population composition of mononuclear blood cells in children with bronchial asthma.

Objectives. To study the relative content of peripheral blood cells carrying CD4, CD8 and CD 16 glycoproteins on their surface membrane in children with bronchial asthma. To determine the serum content of soluble CD25, CD95, CD38, CD50, CD54, HLA-I, HLA-DR antigens and the relative content of peripheral blood mononuclear cells positive for these antigens in children with asthma of varying severity.

Research results. The widespread prevalence of bronchial asthma determines the relevance of a detailed study of the molecular mechanisms of the immune response in various forms of this disease in children. This also applies to the study of the role of soluble forms of membrane proteins of immune system cells in the pathogenesis of asthma. Membrane proteins of immune system cells play an important role in the activation, regulation, cooperation of these cells and the implementation of the immune response as a whole. It is known that membrane proteins can have soluble isoforms formed due to shedding or alternative splicing of mRNA. Data have been obtained that they can act as limiters of immune reactions or act as activators of immunological processes. Evaluation of serum levels of individual antigens and immunophenotyping of mononuclear blood cells can be useful both in the theoretical aspect for determining their role in the pathogenesis of various diseases (including bronchial asthma), and in practical medicine for monitoring and prognostic purposes.

Conclusions. It has been shown that in the blood of children with bronchial asthma, the relative content of mononuclear cells carrying CD25, CD95, HLA-DR antigens on their membrane increases, the content of CD4+, CD50+ cells decreases, and the relative content of CD54+ cells decreases from stage to stage of the disease. It has been found that in children with increasing severity of bronchial asthma, the serum content of soluble CD25, CD95, CD50, CD54, HLA-DR antigens of immune system cells increases. It has been demonstrated that during periods of remission and exacerbation in mild, moderate and severe bronchial asthma, multidirectional changes in the tested immunity indicators are observed. Most often, statistically significant differences between them during periods of remission and exacerbation are found in mild bronchial asthma.

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