

**PRODUCTION OF IL-2, IL-4 IN CHILDREN WITH COMORBID
COURSE OF NEPHROTIC SYNDROME WITH BRONCHIAL ASTHMA**

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Relevance. Currently, more than 300 thousand patients suffer from bronchial asthma in the world, 14% of them are children. Every year, the progression of chronic renal failure (CRF) among children due to nephrotic syndrome (NS) leads to early disability, which has not only medical, but also socio-economic significance.

The purpose of the study was to evaluate the production of IL-2 and IL-4 in children with comorbid nephrotic syndrome and bronchial asthma.

Material and methods. We observed 40 children aged 7 to 11 years suffering from nephrotic syndrome (NS) (nephrotic form of CGN) and atopic bronchial asthma (BA). The patients were divided into two groups: group 1 - NS with BA-20; Group 2-NS without BA -20. The control group consisted of 25 practically healthy children of the same age. The clinical diagnosis was made on the basis of anamnesis, clinical laboratory and functional research methods. The concentrations of immunoglobulin (Ig)E and the production of interleukins-2,4 (IL-2, IL-4) in the blood were studied. The material for the study was venous blood taken in the morning on an empty stomach. Digital data were processed by the method of variation statistics with the calculation of the reliability of numerical differences using Student's t.

Results. According to the results of the studies, it was revealed that in the comorbid course of NS with BA, boys accounted for 70.0%, girls - 30.0%. Duration of the disease - from the onset of the disease in NS without BA - 5.5 years, on average 3.3 ± 1.3 years; in case of NS with BA – 9.0 years, on average 6.2 ± 2.5 . Assessment of the severity of asthma in patients according to the course of the

disease showed that in children with a comorbid course of NS with BA, a large percentage were moderate and severe forms; in terms of the development of complications of NS, children from the first group also made up a large percentage. According to the results of the study of partial renal functions in patients in both groups, when compared with the control group, there was a statistically significant decrease in daily diuresis, a decrease in the relative density of urine ($P < 0.001$), an increase in daily proteinuria (more than 2.5-3.0 g/day), hyperlipidemia ($P < 0.001$), hypercoagulation ($P < 0.001-0.01$), hypoproteinemia, hypoalbuminemia ($P < 0.001$) and increased levels of urea and creatinine in the blood serum ($P < 0.001-0.01$). The results of immunological studies showed that, compared with the control group, all patients during the exacerbation period (before treatment) had a statistically significant increase in the level of IgE in the blood serum and the production of IL-2, IL-4 ($P < 0.001$). Clinical and immunological changes were more pronounced in patients of group 1 compared to group 2.

Выводы.

1. In children with a comorbid course of nephrotic syndrome with bronchial asthma, the production of cytokines is characterized by an increase in the levels of IL-2, IL-4, which remain preserved during the period of remission and can serve as a criterion for the immunodiagnosis of such patients. **2.** An increase in IgE levels in the blood is pathogenetically related to the hyperproduction of IL-2, IL-4, which plays an important role in the progression of the disease.