HUMORAL IMMUNITY CHANGES IN CHILDREN WITH BRONCHIAL ASTHMA AND VASCULAR TONE GENES POLYMORPHISM

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Abstract

The aim of the study was to evaluate the changes in humoral immunity indices of children with ACE and AT2R gene polymorphisms.

Materials and methods. 112 immunograms of children with asthma who underwent genetic and immunological examination were retrospectively analyzed. The B-lymphocytes count and serum IgA, IgM, IgG, IgE, medium and low molecular weight circulating immune complexes were determined. Changes of humoral immunity indexes were evaluated by their frequency and severity.

Results. It was found that the insertion-deletion (ID) genotype of the ACE ID in children with asthma was associated with a reduction of the severity of atopy (acording IgE levels), compared with the group of patients with the insertion (II) ACE ID genotype. In the group of the deletion genotype ACE ID (DD) the highest of all three groups escalation of B cells content and IgE levels was found. This suggests the depletion of the adaptive-compensatory mechanisms, in particular the IgG synthesis, which can compete with Fc-fragments of Ig E receptors on the cells-effector of allergic inflammation. Twice higher levels of median-molecular levels in children with asthma with ACE ID ID and ACE ID DD genotypes indicated an increased activity in their autoimmune mechanisms of allergic inflammation. It has also been shown that changes in humoral immunity in children with AT2R1 AC and AT2R1 CC genotypes were characterized by a more frequent increase in B cell content and enhanced immunoglobulin synthesis, including Ig M and Ig E.

Conclusions. The presence of a homozygous insertive or deletion ACE genotype, as well as the presence of C allele in the gene of the receptor for angiotensin II AT2R1, results in less efficacy of adaptive immunological mechanisms, which leads to an increase in the severity of immunopathological reactions, including atopy and autoimmune component of allergic inflammation.

Key words: children with asthma, humoral immunity, vascular tone genes polymorphism.

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