PREDICTORS OF CARDIOVASCULAR RISK OF ASTHMA COMBINED WITH OBESITY

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Nowadays a significant prevalence of comorbid pathologies creates difficulties in their diagnostic. The combination of illnesses often combines the most common diseases of internal organs, but it is believed that often this coincidence is hereditary and genetically caused.

Aim: study the influence of insertion-deletion polymorphism (I/D) of angiotensin-converting enzyme (ACE) gene in the formation of target organ damage in patients with asthma and obesity.

Materials and methods. The study group involved 61 patients with asthma and obesity and comparison group 42 patients with isolated asthma and at the age of 41.7 ± 6.9 and 40.3 ± 6.2 years old, respectively. The control group was represented by 50 healthy subjects of similar age and sex that allowed us to obtain control results. Endothelial function were assessed by the studying insertion-deletion polymorphism (I/D) gene ACE, which is regarded as the most significant marker of endothelial condition and the main factor that determining the concentration of this enzyme in the plasma. In the 16th intron of the gene, which is located on chromosome 17q23r, presents (I-insertio) or absents (D-deletio) a DNA fragment. It is consisting of the 263-287 pairs Alu sequences. The presence of these changes in a DNA fragment considered as an indicator of a mutation of the gene.

Results and discussion. Thus, among the 50 control subjects homozygous I/I ACE gene were detected in 16 % of patients, heterozygotes I/D – 54 %, and the mutant homozygote D/D – 30 %. In the group with isolated asthma genotype distribution corresponded to 14.3 %, 33.3 % and 52.4 % patients. In case of combination of asthma and obesity amount of patients with abnormal genotype increased in 2 times compared to control group and was 8.2 %, 31.1 % and 60.7 % respectively. Pathological genotype of the ACE gene influenced on the time of occurrence of asthma. Thus, when comparing the clinical symptoms with genotype of the ACE gene were found that asthma exacerbations in 28 patients of the study group and 11 – the comparison group led to the appearance of cardiac symptoms: cardialgias, heartbeat, heart rhythm disturbances, increased blood pressure (abnormal genotype D/D – 35.1 % and 13.2 %, respectively).

Conclusion. Considering the fact that the ACE gene determines the same enzyme concentration in the plasma, we can assume that the increase in mutant homozygotes can lead to early development of endothelial dysfunction and cardiovascular events.