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BODY MASS INDEX IN PATIENTS WITH BRONCHIAL
ASTMA DEPENDING ON β_2 – ADRENOCEPTOR Gln27Glu
GENE POLYMORPHISM

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It is known, that obesity and excess body mass significantly increases the risks of the emergence of various comorbidities, including bronchial asthma (BA).

Because of prevalence and medical social values BA and obesity belongs to global problem of health guarding. The level of morbidity and dissemination of BA increased recently among adult population, who are suffering because of obesity. Obesity is a contributing factor of BA development. As explanations to the links between obesity and BA genetic predisposition has been considered. Obesity complicates the BA control and decreases positive results of the treatment.

The purpose of the investigation was studying the dependence between body mass index and Gln27Glu polymorphism ADRB2 gene among patients with BA.

Materials and methods. 188 patients with light, moderate and severe persistent BA at the age from 18 till 70 have been examined. The diagnosis was made according to GINA recommendations (2011) and The Order of Ukraine Ministry of Health №128 19.03.2007. The control group consisted of 87 almost healthy humans without allerhopatology without allergic history.

Determination of allelic polymorphism of 1 exon β_2 – adrenoceptor Gln27Glu gene (rs1042714) was made using method of polymerase chain reaction with following analysis of restriction fragment length.

Results of investigations. During the investigation it was defined that among patients with BA Gln27Gln genotype carriers average BMI was $24,9 \pm 0,5 \text{ kg/m}^2$, the carriers of Gln27Glu genotype – $28,2 \pm 0,8 \text{ kg/m}^2$, the carriers of Glu27Glu genotype – $34,5 \pm 0,6 \text{ kg/m}^2$ ($p=0,0001$). The average BMI was $23,4 \pm 0,4 \text{ kg/m}^2$, Gln27Glu – $23,7 \pm 0,5 \text{ kg/m}^2$, Glu27Glu – $23,2 \pm 0,4 \text{ kg/m}^2$ ($p = 0,8$) in almost healthy carriers of Gln27Gln Genotype. So, the patients with BA and Glu27Glu genotype have higher level of BMI ($34,5 \pm 0,6 \text{ kg/m}^2$).

Conclusions: The connection between Glu27Glu polymorphism ADRB2 gene and BMI among patients with BA have been found. Glu27Glu genotype is associated with obesity among patients with BA. The frequency of Glu27Glu genotype among patients with normal BMI was 69,7%, with overweight – 18.2 %, and with obesity – 12.1 %; carriers of Gln27Glu genotype – 53,8 %, 2,9 % and 43,3 %; carriers Glu27Glu genotype – 9,1 %; 4.5 %; 86,4 % respectively ($p = 0,0001$). This tendency was not noticed ($p = 0,8$) in the control group.