

# INFLUENCE OF C79G (RS1072714) AND A46G (RS1042713) POLYMORPHISM OF ADRB2 GENE ON CLINICAL COURSE OF CHRONIC OBSTRUCTIVE PULMONARY DISEASE

**K. D. Dmytriiev, Yu. M. Mostovoy, N. S. Slepchenko**

*Vinnytsia National Pirogov Memorial Medical University, Vinnytsia, Ukraine*

**Abstract.** Chronic obstructive pulmonary disease (COPD) is a prevalent disease, that can be prevented and treated. Genetic factors play an important role in the COPD development.

**The aim** of our study was to found ADRB2 gene polymorphism prevalence among patients with COPD, and assessment of its relation with the COPD development and clinical course.

**Materials and methods.** 100 patients with COPD were included into the study. Source documentation, clinical and historical data were collected during study visits. Blood samples for ADRB2 gene testing were taken in all patients. All patients were treated according to GOLD guidelines, which included a combination of long-acting beta-2 agonists and long-acting anticholinergic drugs. According to the genetic analysis all patients were divided into 3 groups C79C/G46G (Haplotype 1) — 23 patients (23 %), C79G/A46G (Haplotype 2) — 26 patients (26 %), G79G/A46A (Haplotype 3) — 26 patients (26 %).

**Results.** In correlation analysis there was a weak negative correlation between Haplotype 1 and total amount of exacerbations ( $r = -0.245$ ,  $p = 0.032$ ) and hospitalizations ( $r = -0.248$ ,  $p = 0.032$ ), and haplotype 3 had weak positive correlation with the amount of out-patient exacerbations ( $r = 0.263$ ,  $p = 0.023$ ). An average amount of antibiotic courses in group 1 was ( $1.09 \pm 0.2$ ), in group 2 — ( $1.69 \pm 0.18$ ), in group 3 — ( $2.00 \pm 0.22$ ), this difference was statistically significant ( $p = 0.005$ ). There also was a significant difference in the duration of antibiotic treatment, which was ( $8.61 \pm 1.55$ ) in group 1, ( $12.88 \pm 1.62$ ) days in group 2 and ( $14.42 \pm 1.68$ ) days in group 3 ( $p = 0.036$ ).

**Conclusions.** ADRB2 gene polymorphism affects clinical course of COPD, which manifest in the different need in the administration of antibiotics in study groups, and also in the tendency towards different amount of exacerbations and rate of glucocorticoid use.

**Key words:** COPD, gene ADRB2, exacerbations, antibiotics.