

DETERMINATION OF Pro12Ala POLYMORPHISM OF PPAR- γ_2 GENE AS PREDICTOR OF EFFICACY OF PYOGLITAZONE ANTI-INFLAMMATORY THERAPY OF BRONCHIAL ASTHMA IN COMBINATION WITH CORONARY HEART DISEASE

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Abstract

Polymorphism Pro12Ala of PPAR- γ_2 gene plays an important role in the pathogenesis of bronchial asthma (BA) in combination with coronary heart disease (CHD). However, the pharmacogenetic aspects of the use of pioglitazone are still understudied.

The aim is to evaluate the clinical impact of pioglitazone on the pathogenetic course of BA in combination with CHD, considering Pro12Ala polymorphism of PPAR- γ_2 gene.

Materials and methods. 50 patients with BA and CHD were enrolled. Patients were divided into 2 groups: the control group (n = 25) patients received the complex therapy for 6 months; the main group (n = 25) patients received pioglitazone (Pioglar, Ranbaxy, India) 15 mg daily in addition to complex therapy. Efficacy was assessed in 6 months, considering Pro12Ala polymorphism of PPAR- γ_2 gene and clinical and laboratory tests data.

Results. The use of pioglitazone during 6 months in Pro (Pro/Pro) allele carriers reduced the respiration rate (p = 0.02), decreased systolic (p = 0.0001) and diastolic blood pressure (p = 0.0001), increased FEV1 (p = 0.0003) and Gensler index (p = 0.03), improved the endothelial function and endothelium-derived vasodilation due to increase of $\Delta\%$ of the diameter of brachial artery (p = 0.0001, p = 0.0001, respectively), reduced the serum concentrations of highly-specific C-reactive protein (p = 0.0004) and dissolved form of adhesion vessel molecule (sVCAM-1) (p = 0.02).

Conclusions. Use pioglitazone for 6 months in patients with BA and CHD, the carriers of Pro (Pro/Pro) allele, led to improvement in the functional condition of the lungs, decrease of blood pressure, inhibition of endothelium dysfunction and inflammation, whereas standard therapy in this cohort of patients caused a meaningful endothelio-protective and anti-inflammatory effect. This confirmed the presence of possible pharmacogenetic susceptibility peculiarities, which should be considered in clinical practice.

Key words: bronchial asthma, coronary heart disease, polymorphism Pro12Ala of PPAR- γ_2 gene.

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