

Summary. The congestive heart failure is the actual problem of modern medicine, which causing high mortality rate and hospitalization.

The leading etiological factor of heart failure is ischemic heart disease, which through a combination of obesity contributes to the progression of heart failure and worsening prognosis in this cohort of patients.

It is endothelium vasodilatation response significantly reduced from the standpoint of current views on the pathogenesis of heart failure deserves special attention that such patients.

It was demonstrated that the implementation of the endothelium plays a role vasodilatation response genetic polymorphism particular gene polymorphism of endothelial nitric oxide synthase (Glu298Asp).

The article reviewed the links between gene polymorphism of endothelial nitric oxide synthase (Glu298Asp) and the development and progression of congestive heart failure in patients with ischemic heart disease and obesity.

We performed a complex examination of 222 patients with ischemic heart disease, who were treated at the cardiology department of the Kharkiv City Clinical Hospital №27, which is the clinical base of the Department of Internal Medicine №2 and Clinical Immunology and Allergology The Kharkiv National Medical University.

Comparison group consisted of 115 patients with ischemic heart disease with normal body weight. The control group included 35 healthy individuals.

Research allelic polymorphism of the gene eNOS Glu298Asp was performed by PCR with electrophoretic detection results using reagent kits «SNP-Express" produced by SPC "Liteh" (Russian Federation). DNA isolation from whole blood was performed using the reagent "DNA rapid blood" produced by SPC "Liteh" (Russian Federation) according to the instructions. The correctness of the frequency distribution of genotypes determined compliance equilibrium Hardy-Weinberg ($p_i^2 + 2 p_i p_j + p_j^2 = 1$). According to the Helsinki Declaration, all patients were informed about the clinical trial and agreed to determine gene polymorphisms investigated.

The statistical analysis of the results was performed using software program «Statistica» (StaSoftInc, USA). The values calculated were the mean, the standard deviation and the significance level by Pearson at $p < 0,05$.

G allele and genotype G/G polymorphism of the gene of endothelial nitric oxide synthase (Glu298Asp) was associated with the development of ischemic heart disease.

The presence of allele G and G/G genotype polymorphism of the gene of endothelial nitric oxide synthase (Glu298Asp) in patients with ischemic heart disease with concomitant obesity has been associated with the development of congestive heart failure, while the A allele was associated with decreased risk of heart failure.

Progression of congestive heart failure in patients with ischemic heart disease and obesity was associated with the G allele gene polymorphism of endothelial nitric oxide synthase (Glu298Asp), and A allele was protective properties.