

THE ASSOCIATION OF β -ADRENORECEPTION SYSTEM GENES POLYMORPHISMS AND INTERLEUKINS LEVELS IN PATIENTS WITH HEART FAILURE

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Purpose

To study the relationship of the β -adrenoreception system (β -ARs) genes polymorphisms with interleukins (IL) levels in patients with heart failure (HF).

Methods

285 patients with heart failure on the background of post-infarction cardio-sclerosis were included. 55 healthy volunteers made up the control group. Enzyme-linked-immunosorbent assay was conducted: levels of tumor necrosis factor- α , interleukins (IL) IL-1 β , IL-4, IL-6 were evaluated. Genetic studies were conducted by using polymerase chain reaction

method, which included determination of allelic polymorphisms of β_1 -adrenoreceptor (β_1 -AR) genes (rs1801253, p.Ser49 Gly; c.1165G>C; p.Gly389 Arg); and (rs1801252; c.145A>G; p.Ser49Gly), β_2 -AR (rs1042714; c.79C>G; p.Gln27 Glu). Genetic and epidemiological analysis was carried out using the SNPStats program.

Results

In patients with heart failure, the C-allele of Gly389A polymorphism of the β_1 -AR gene is associated with a reduced risk of increased levels of TNF- α > 1.96 pg/ml (Odds ratio (OR) = 0.48 (0.25 - 0.93), p = 0.028 - dominant model of inheritance; OR = 0.62 (0.39 - 0.99), p = 0.046 - log-additive model of inheritance).

The level of IL-1 β increases > 2.13 pg/ml in patients with heart failure and with the A-allele of the Ser49Gly polymorphism of the β_1 -AR gene (OR = 1.82 (1.01 - 3.27), p = 0.042 - the dominant model of inheritance). Heterozygous (by A/G-Ser49Gly polymorphism of the β_1 -AR gene) patients with heart failure have a reduced risk of an increase in IL-6 level > 2.13 pg/ml (OR = 0.44 (0.21 - 0.93), p = 0.035 - overdominant model of inheritance).

Conclusions

The results allow us to conclude that the levels of interleukins in the blood of patients with heart failure may be associated with congenital genetic differences in the pathways of β -adrenoreceptor.