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Hypolipidemic therapy of patients with ischemic heart disease during the infection of the  
infection process

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The association of polymorphisms of genes of pro- and anti-inflammatory interleukins (IL) in patients with coronary heart disease with isolated or combined hypercholesterolemia and acute respiratory viral infection was compared with patients with ischemic heart disease without an infectious process that formed a drug response to the pharmacological correction of hyperlipidemia by IV-generation statins.

Key words: statins, hypercholesterolemia, interleukin, infection, IHD.

#### Introduction

IHD is a pathological condition that is caused by absolute or relative impairment of blood supply to the heart muscle as a result of coronary artery disease [4].

#### Purpose of the study

Identify the association of polymorphisms of pro and anti-inflammatory interleukin (IL) genes in patients with coronary heart disease with acute respiratory viral infection in comparison with patients with ischemic heart disease without an infectious process.

#### Materials and methods of research

Genotyping of the studied genes of pro- and anti-inflammatory cytokines (IL-1 $\beta$ , IL-4, IL-6, IL-10) was carried out at the Department of Biology, Medical Genetics and Ecology of the federal state budgetary institution of higher education "Kursk State Medical University" of the Ministry of Health of the Russian Federation. The concentration of interleukins (1 $\beta$ , 4, 6, 10) in the blood serum was determined by the method of solid-phase enzyme-linked immunosorbent assay with the help of the Tekan analyzer (Austria) by the sets of the company Vector Vector Best (Russia).

#### Results of the study

Their proinflammatory effects are accompanied by atherosclerosis. Many studies have shown the relationship between the increase in TNF- $\alpha$ , IL-1 $\beta$ , IL-6 levels with manifestations of atherosclerosis and IHD destabilization [1]. The manifestation of autoimmune processes is also promoted by cytokines. A number of viruses have the properties of cytokine proteins, so they can be regarded as cytokines. Synthesis of these proteins changes the effect of cytokines [2]. With the incidence of acute respiratory viral infection, there is an imbalance in the interaction of cytokines against a background of chronic infection. These changes can become irreversible and stimulate the inflammatory process [3].

In patients with IHD, viral infection, proinflammatory cytokines (IL-1 $\beta$  and IL-6), which are the main markers of antiviral immunity, significantly exceed those in patients without signs of SARS.

Patients after the transferred viral infection by 3 months reached the level of cytokines, comparable to the results obtained in patients with IHD without manifestation of a viral infection. In patients with IHD without signs of acute respiratory viral infection, the level of IL-1 $\beta$  and IL-6 remained stable throughout the observation period and was much lower than in patients with viral infection.

The level of anti-inflammatory cytokines in patients with viral infection tended to decrease, due to the active inflammatory process at the II visit, which was accompanied by the restoration of balance at the end of the observation (12 weeks).

The cytokine profile was characterized by high levels of IL-4 and IL-10 in comparison with proinflammatory cytokines in conditions of pharmacological correction of HCV by IV-IV statins and antiviral drugs, which is due to compensation mechanisms for maintaining equilibrium, which are characteristic, specifically, for 1-2 FC of angina pectoris. This is due to the balance of pro- and anti-inflammatory factors to maintain stability in the atherosclerotic plaque; and prevention of its destruction.

#### conclusions

The obtained variations in the level of pro-and anti-inflammatory cytokines are based not only on the pathogenetic basis, but also related to the genetic characteristics of the production of the cytokines studied.

#### Conclusion

When studying the effect of IL-1 on the serum content of lipid fractions, there was a weak inverse correlation between the level of cholesterol and IL-1. When the anti-inflammatory cytokines (IL-4, IL-10) increase, the level of OX decreases. At an elevated level of OX, low values of IL-1 were revealed.

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