

GENETIC PREDICTORS OF THE DEVELOPMENT OF COMPLICATED FORMS OF DIABETIC FOOT SYNDROME

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The actuality. Diabetic foot syndrome is one of the terrible complications of diabetes mellitus. In 55% of cases, this complication occurs in patients aged 25 to 75 years. To implement the basic principles of modern personalized medicine, it is relevant to study the genetic aspect of multifactorial diseases, which include diabetes mellitus and its complications, in order to identify numerous genetic polymorphisms that should be taken into account in combination with modifiable and non-modifiable non-genetic factors.

The aim of the research. In connection with the above, the aim of the study was to analyze the correlation between the G634C polymorphisms of the VEGFA gene and C174G of the IL6 gene with the development of diabetic foot syndrome in patients with diabetes mellitus.

Materials and methods. Scientific work was carried out on the basis of the clinics of the Andijan State Medical Institute in the period from 2020 to 2023. The diagnosis of DFU was established on the basis of the results of laboratory-instrumental (USDG) and molecular genetic studies. The clinical group included 96 patients aged 40 to 75 years with diabetes mellitus complicated by diabetic foot syndrome. The control group consisted of 83 healthy individuals.

The results and their discussion. The frequency of genotypes of the examined patients corresponded to the Hardy-Weinberg equilibrium, which allowed us to compare the carriage of these mutations in the studied groups. As can be seen from our data, in the study of polymorphism G634C of the VEGFA gene, the frequencies of alleles G and C in the main group of patients and the control group were 75.5% and 24.5% and 89.1% and 10.1%, respectively. At the same time, the distribution of alleles in the examined groups differed significantly; the unfavorable C allele was significantly higher among the main group of patients (OR=2.7; 95% CI: 1.5 - 4.74) and in the subgroup of patients with purulent-necrotic complications SDS (OR=2.8; 95% CI: 1.51 - 5.21). Allele C was shown to have a direct, statistically significant relationship with the disease, RR=1.2 (95% CI: 0.53 - 2.63). In the main group, compared with the population sample, a statistically significant decrease in the frequency of the G allele was shown, i.e. this allele has a protective effect (OR=0.8; 95% CI: 0.58 - 1.23). The homozygous G/G genotype had a protective effect in relation to the disease,

since the chance of detecting this genotype was statistically significantly lower in a sample of patients compared to apparently healthy individuals.

When analyzing the obtained data, we found that in patients with diabetes mellitus aggravated by the development of DFS, there were differences in the frequency of occurrence of C174G polymorphisms of the IL6 gene. The C/G genotype of the indicated IL6 gene polymorphism was 1.4 times more common in patients of the main group with diabetic foot syndrome. The frequency of occurrence of the G/G genotype of the C174G polymorphism of the IL6 gene in patients with diabetic foot syndrome was 1.2 times more frequent than in the control group. It has also been established that in the presence of the C/C genotype of the C174G polymorphism of the IL6 gene, the risk of developing diabetic foot syndrome is reduced by 50% (OR = 0.6 CI 0.31 - 1.25), which indicates its protective function in relation to the risk of developing diabetic foot syndrome in patients with diabetes mellitus.

Thus, we found a correlation between the frequency of occurrence of the genotypes of the studied polymorphisms of the VEGFA and IL6 genes and the risk of developing diabetic foot syndrome in patients with diabetes mellitus.

Conclusion. Thus, the obtained results demonstrate that the presence of the G/G genotype of the G634C polymorphism of the VEGFA gene, as well as the presence of the C/G genotype of the C174G polymorphism of the IL6 gene, has a clear correlation with predisposition to the development of diabetic foot syndrome. Carrying the G/G genotype of the G634C polymorphism of the VEGFA gene and the C/C genotype of the C174G polymorphism of the IL6 gene is associated with a protective effect on the development of DFS.