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FREQUENCY OF ALLELES AND GENOTYPES OF THE TNFA-308G/A (RS1800629) GENE IN PATIENTS WITH NONSPECIFIC ULCERATIVE COLITIS

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Abstract

Nonspecific ulcerative colitis (NUC) is a chronic disease of an immune-inflammatory nature that occurs with ulcerative-destructive changes of the mucosa of the rectum and colon, characterized by a progressive course and the development of severe intestinal and extraintestinal complications such as bleeding, toxic dilation of the colon, perforation, peritonitis, abscesses, strictures, cancer, and sepsis.

Aim of the study

To determine the distribution of alleles and genotypes of the TNFα -308G/A (rs1800629) gene in patients with nonspecific ulcerative colitis.

Materials and methods

The study included 112 patients with various courses of nonspecific ulcerative colitis who were hospitalized in the Department of Gastroenterology and Abdominal Surgery of the Multidisciplinary Medical Center of the Khorezm Region.

Genotyping of polymorphic loci of immune response genes was performed by polymerase chain reaction (PCR) with allele-specific primers (Litech Research and Production Company, Moscow) and electrophoretic detection of the reaction products in agarose gel. The polymorphism of the genotypes of the TNF-α -308 G/A (rs1800629) gene was tested. The SNP has been previously validated (NCBI dbSNP database, http://www.ncbi.nlm.nih.gov/projects/SNP/index.html).

Results

The allelic variants and genotypes of TNFα -308G/A were analyzed. For the GG genotype, significant differences were found between the patients and the control group (OR =0.453; 95% CI: 0.218 >0.453> 0.943; $\chi 2$=4.635 (p=0.031332)). According to the obtained data, the GG genotype of rs1800629 of the TNFα gene is a favorable genotype in this sample. The GG genotype was less common in the group of patients with nonspecific ulcerative colitis, at 75.00% of cases, and significantly more common in the control group, at 86.87% of cases.

Analysis of the heterozygous GA genotype revealed opposite differences in frequency between the patients and the control group (OR =2.205; 95% CI: 1.06 >2.205> 4.585; $\chi 2$=4.635 (p=0.031332)). Thus, the GA genotype was found four times more often in patients with nonspecific ulcerative colitis (25.00%) than in the control group (6.57%).

Conclusions

The obtained data support the view that the TNFα-308G/A (rs1800629) polymorphism (especially the GA genotype) contributes to susceptibility, while the homozygous G allele genotype GG has a protective significance against the development of nonspecific ulcerative colitis.