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Topical Issues of Theoretical and Clinical Medicine

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Materials and Methods. Venous blood of 163 patients with T2DM and 110 healthy individuals was used for genotyping was by PCR-RFLP.

Results. Genotyping of patients with T2DM and patients of the control group at the K121Q polymorphism has allowed to establish the frequency with which there are certain variants of *ENPP1* gene depending on the presence or absence of concomitant cardiovascular pathology.

Analyzing the frequency of genotypes of K121Q polymorphism gave an opportunity to assert that there is no statistically significant difference in the distribution of allelic variants among patients with T2DM with concomitant CHD (χ^2=0.482; P=0.488), arrhythmia (χ^2=1.031; P=0.310), myocardial hypertrophy (χ^2=0.422; P=0.516), myocardial infarction (χ^2=0.307; P=0.579). The exception was only of cerebrovascular pathologies, namely the development of ischemic stroke. Among patients with T2DM, with ischemic stroke, people with K/K genotype was 48.8% and with K/Q+Q/Q genotype – 51.2%. The frequency of polymorphic variants in patients with T2DM without stroke was of 70.5 and 29.5%, respectively. Thus, in patients with T2DM carriers of the minor allele (K/Q+Q/Q) the risk of ischemic stroke was significantly higher than in individuals for the major allele (K/K) (χ^2=6.361; P=0.012).

Conclusion. It was found that patients with T2DM carriers of the minor allele (K/Q+Q/Q) occurrence of ischemic stroke was noted significantly more likely than in individuals for the major allele (K/K). There is no association between the K121Q polymorphism of *ENPP1* gene and the development of comorbidities such as such as coronary heart disease, myocardial infarction, myocardial hypertrophy and arrhythmia in patients with type 2 diabetes.

IMPACT OF *VDR* GENE POLYMORPHISM ON THE DEVELOPMENT OF ISCHEMIC STROKE IN SMOKERS AND NON-SMOKERS

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Today, we have ample evidence that hormonal system of vitamin D, the main component of which is calcitriol ($1\alpha,25(OH)_2D_3$) and receptor of vitamin D (VDR) plays an important role not only in the regulation of functional and metabolic processes in the body, but also in the development of many diseases, including cardiovascular disease. The risk factors for ischemic stroke can be divided into unregulated (age, gender, race) and susceptible (malnutrition, lack of physical activity, smoking, alcohol abuse). Smoking doubles the risk of stroke. Once you stop smoking, the risk of a stroke in you will start to decrease immediately, after five years, the risk of developing a stroke will be the same as that of non-smokers.

Aim of our study was to analyze the association of *Bsm*I polymorphism of *VDR* gene in smokers and non-smokers patients with ischemic stroke.

Methods. Venous blood of 170 patients with atherothrombotic ischemic stroke and 124 healthy individuals (control group) was used for genotyping. Pathogenetic variants of stroke was determined according to the criteria TOAST, based on anamnesis and clinical features of the disease, dopplerography ultrasound data of main arteries of the head, and ECG. Polymorphism*Apa*I of gene *VDR*was examined with PCR-RFLP methodology.Statistical analysis was performed using SPSS-17 program.

Results. The distribution of genotypes for *Bsm*I polymorphism of*VDR* gene in smokers and those who do not smoke in the control group were found persons who do not smoke with genotype b/b – 45.2%, b/B – 44.1%, B/B – 10.8%, and those who smoke are respectively 48.4%, 35.5%, and 16.1%. Comparison of the data indicates no statistically significant differences in the distribution of allelic variants *Bsm*I polymorphism between individuals who are smokers and non-smokers in the control group ($\chi2 = 1.018$, $P = 0.601$). Among patients with IAS persons, non-smokers, with genotype b/b was 43.3% with genotype b/B – 44.2%, with genotype B/B – 12.5%, and smokers 38.0%, 42.0%, 20.0% respectively. Statistical significance of differences in the distribution of SNP between the non-smokers and smokers with IATI not found ($\chi2 = 1.628$, $P = 0.443$).

Conclusion. In both groups, the main and control not found an association between genotype and patients' smoking habits.

ASSOCIATION *Apa*I POLYMORPHISM OF *VDR* GENE WITH THE DEVELOPMENT OF ISCHEMIC STROKE IN INDIVIDUALS OF DIFFERENT SEX

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In the overwhelming majority of cases, cerebral stroke is a multifactor disease, in the development of which, along with other factors, an undoubted role is played by changes in the system of hemostasis. In the last decade considerable attention has been paid to the study of the influence of genetic predisposition on the hemostatic system. In general, the risk of stroke in men is 30% higher than that of women. However, this is typical only for the age group of the population from 45 to 64 years. At the age of more than 65 years, the risk of stroke in men and women is practically the same.

Aim of our study was to analyze the association of *Apa*I polymorphism of *VDR* gene the development of atherothrombotic ischemic stroke (AIS) in individuals of different sex.

Methods. Venous blood of 170 patients with atherothrombotic ischemic stroke and 124 healthy individuals (control group) was used for genotyping. Pathogenetic variants of stroke was determined according to the criteria TOAST, based on anamnesis and clinical features of the disease, dopplerography ultrasound data of main arteries of the head, and ECG. Polymorphism *Apa*I of gene *VDR* was examined with PCR-RFLP methodology.

Result. The distribution of genotypes for the SNP studied in women with IAS, the polymorphic variants a/a, a/A and A/A accounted for 25.0%, 50.0% and 25.0%, while in the control group – 33, 3%, 46.7% and 20.0% respectively. The differences between the two groups to be insignificant ($\chi 2=1.045$; P=0.593). Men patients with IAS mentioned above parameters amounted to 27.6%, 50.0% and 22.4%, and in control – 30.4%, 40.5% and 29.1% ($\chi 2=1.747$, P=0.417). Analysis of the frequency of females and males in the comparison group depending on genotype-*Apa*I polymorphism showed that among homozygotes for the a-allele proportion of women and men in the control was respectively 38.5% and 61.5%, and in patients with IAS - 40.0% and 60.0%. In heterozygotes these parameters amounted to 39.6% and 60.4% in controls and 42.4% and 57.6% of patients in the main group.

Conclusion. In our work executed for the first time analyzed the association of *VDR* gene *Apa*I polymorphism with atherothrombotic stroke representatives of both sexes were not found due investigated the genetic factors of atherothrombotic ischemic stroke in persons of female and male.