PP-BSTR-10

Association of Polymorphic Markers *rs243865* and *rs3025058* with the Development of Arterial Hypertension

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Background & Hypothesis:
Essential hypertension is a multifactorial polygenic disease with a highest incidence in the world. The purpose of the study was to assess the relationship between gene polymorphisms *MMP2-1586S>T (rs243865)* and *-1612 5A/6A MMP3 (rs3025058)* with the development of arterial hypertension in population of the Central Chernozem region of Russia.

Methods:
Study group included unrelated 1065 subjects: 534 patients with hypertension and 531 controls. The groups included individuals of Russian origin, who are inhabitants of the Central Chernozem region. Genomic DNA was obtained from study patients and extracted by phenol-chloroform extraction. Genotyping of the polymorphisms study was carried out using real-time polymerase chain reaction with Taq-Man probes.

Results:
The frequency of allele *-1612 6A MMP3* was significantly higher (54, 96%) in hypertensive patients as compared to the control group (46, 05%, $\chi^2 = 8, 57$, $P = 0.004$, OR = 1.43, 95% Cl 1.12-1.82). The frequency of genotypes *-1612 5A/5A* was 22, 28% in hypertensive patients and 32, 11% in controls ($\chi^2 = 6, 72$, $P = 0.01$, OR = 0.61, 95% Cl 0.41-0.89). No significant differences between the groups were found regarding to allele and genotype frequencies of the *1586S>T* polymorphism of the *MMP2* gene.

Discussion & Conclusion:
The allele *-1612 6A MMP3* is a risk factor of arterial hypertension in Russians from the Central Chernozem region of Russia. The study was supported by the project ("Studying of the genetic risk factors for multifactorial diseases").