MMP1 GENE POLYMORPHISM AND CIRCULATING MMP IN ELDERS WITH LIPEMIA AND PATIENTS WITH IHD

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*Objective*. We aimed to test the association between matrix metalloproteinase type 1 (MMP1) genetic polymorphisms, circulating MMP and lipemia development in young, old persons and in patients with ischemic heart disease.

*Background*. Polymorphism in MMP1 gene (1-bp insertion G-1607GG in the promoter sequence; rs1799750) defines existence of two alleles of gene. It was suggested that the increased formation of such enzymes is result of mutation of MMP1 gene associated with the increased risk of atherosclerosis.

*Methods*. DNA samples of 70 persons (<45 and >45 years with lipemia or normal lipid profile) and 15 patients with ischemic heart disease (IHD) were isolated from blood using commercial DNA Express kit (SPC Lytech, Russia). Genotyping was carried out by RT-PCR method (IQ5, BioRad). Serum MMP activity assay was made by fluorometric method against MCA-Pro-Leu-Gly~Leu-Dpa-Ala-Arg-NH2 (American Peptide Company, Inc.) as a substrate at pH 7.5 (Knight et al., 1992).

*Results*. In healthy persons in Novosibirsk (<45 years old, with normal serum lipids profile) the rate of MMP1 2G/2G was shown in 42.8%. In elders with lipemia MMP1 2G/2G predominated (63.6%), and MMP1 1G/2G and MMP1 1G/1G rate was equal (both 18.2%). In IHD MMP1 2G/2G also predominated (53.3%), while MMP1 1G/1G were registered in 13.3%, and MMP1 1G/2G – in 33.3%. There was a slight elevation of serum MMP activity in IHD group.

*Conclusion*. Elder persons with dislipidemia and patients with IHD were characterized by increased rate in MMP1 2G/2G gene possibly related to this disease.