rs3918242 *MMP9* gene polymorphism is associated with myocardial infarction in Mexican patients

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ABSTRACT. Several studies have demonstrated that matrix metalloproteinases (MMPs) play a major role in atherosclerotic plaque disruption and lead to myocardial infarction (MI). We investigated the association between the *MMP1 -1607 1G/2G* (rs1799750), *MMP3 -1612 5A/6A* (rs3025058), and *MMP9 -1562 C/T* (rs3918242) polymorphisms and the risk of developing MI in a Mexican mestizo cohort. The genotype analysis was performed using the restriction fragment length polymorphism-polymerase chain reaction technique in a group of 236 patients with a history of MI and 285 healthy controls. Similar distributions of rs1799750 and rs3025058 were observed in both groups; however,

the *MMP9* rs3918242 *T* allele and the *CT* genotype were associated with the risk of developing MI (OR = 2.32, pC = 0.02 and OR = 2.40, pC = 0.02, respectively). Multiple logistic analysis was performed between MI patients and controls to estimate the risk, and after adjusting for identified risk factors, the *CT* + *TT* genotypes of *MMP9* rs3918242 were found to be significantly associated with increased risk of developing MI than those with the *CC* genotype (OR = 2.88, P < 0.01). In summary, our results reveal that the rs3918242 polymorphism of the *MMP9* gene plays a major role in the risk of developing MI.

Key words: Matrix metalloproteinase; Polymorphisms; Myocardial infarction; Atherothrombosis

