

Platelet glycoprotein IIIA PIA1/A2 polymorphism in young patients with ST elevation myocardial infarction and idiopathic ischemic stroke

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Abstract It has been identified that platelet glycoprotein IIIa PIA1/A2 polymorphism plays an important role in atherothrombotic disease such as myocardial infarction and stroke, but results remain controversial. Here, we investigated whether the PIA2 allele is associated with ST myocardial infarction or idiopathic ischemic stroke in young individuals in two independent studies. In a case–control study 275 patients with ST elevation myocardial infarction ≤ 45 years of age and 278 controls were recruited. In a second study, 200 patients with idiopathic ischemic stroke ≤ 45 years of age and 200 controls were enrolled. In both studies cases and controls were matched by age and gender. The PIA1/A2 polymorphism was determined in all participants by a polymerase chain reaction-restriction fragment length polymorphism assay. There was a significant difference in the PIA1/A2 genotype distribution ($P = 0.001$) and allele frequency ($P = 0.001$), between ST elevation

myocardial infarction and control groups, but not in the PIA1/A2 genotype distribution ($P = 0.61$) and allele frequency ($P = 0.80$), between idiopathic ischemic stroke. The allele PIA2 represented an independent risk for ST elevation myocardial infarction but not for idiopathic ischemic stroke. Hypertension, smoking, and family history of atherothrombotic disease were also associated with ST elevation myocardial infarction and idiopathic ischemic stroke. Our results suggest that PA2 allele represents a risk factor for ST elevation myocardial infarction in young Mexican individuals but not for idiopathic ischemic stroke.

Keywords Atherothrombosis · Myocardial infarction · Stroke · Platelet · Polymorphism · PIA1/A2

Introduction

Atherothrombotic disease is the first cause of mortality worldwide [1]. Myocardial infarction (MI) and ischemic stroke (IS) represent the most important thrombosis complications of arterial thrombosis disease. Approximately, between 5 and 10 % of individuals who suffer MI or stroke are ≤ 45 years of age or less [2] and it represents a very important healthcare issue in our country [3]. ST elevation myocardial infarction (STEMI) represents more than 80 % of all MIs in young individuals.

Several conditions may contribute to the occurrence of those atherothrombotic diseases in this age group, including environmental and genetic risk factors.

Platelets play an important role in atherothrombotic disease both in the pathogenesis of atherosclerosis and the development of acute thrombotic events. The platelet membrane receptor glycoprotein (GP) IIb/IIIa binds to von

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