GMR Genetics and Molecular Research
Online Journal
ISSN:1676-5680

Correlation between polymorphism of platelet alloantigen genes *HPA-1-5* and type 2 diabetes complication by carotid atherosclerosis in a Chinese population

Y.H. Zhang[1], S.F. Xu[2], J. Zheng[3], H.S. Hong[1] and L.M. Fan[1]

[1]Emergency Department, Affiliated Hospital of Guiyang Medical College, Guiyang, Guizhou, China
[2]Intensive Care Unit, Wenzhou People's Hospital, Wenzhou, Zhejiang, China
[3]Endocrinology Department, Affiliated Hospital of Guiyang Medical College, Guiyang, Guizhou, China

Corresponding author: L.M. Fan
E-mail: Fanliangmin_flm@163.com

Genet. Mol. Res. 14 (2): 4607-4615 (2015)
Received July 16, 2014
Accepted November 4, 2014
Published May 4, 2015
DOI http://dx.doi.org/10.4238/2015.May.4.19

ABSTRACT. We investigated the association between the polymorphism of human platelet alloantigen genes *HPA-1-HPA-5* and the complication of type 2 diabetes mellitus (T2DM) by carotid atherosclerosis (CA) among Han people in Guiyang District, China. Ninety-nine T2DM patients were selected from the Affiliated Hospital of Guiyang Medical College and divided into a CA(+) group and a CA(-) group. A control group comprised 100 healthy people from the medical examination center of the same hospital. Genomic DNA from all the subjects was isolated by phenol-chloroform extraction and target genes were amplified using sequence-specific primer-polymerase chain reaction, followed by gene type detection of *HPA*. There were significant differences in allele and genotype frequencies of *HPA-1*, *-2*, *-3*, and *-5* among the three groups [CA(+), CA(-), and the control group] (P <

0.05), and significant differences in allele and genotype frequencies of *HPA-1*, *-2*, and *-3* between groups CA(+) and CA(-) and the control group ($P < 0.05$). Moreover, there was a significant difference in allele and genotype frequencies of *HPA-5* between the CA(+) and CA(-) groups ($P < 0.05$). Logistic regression analysis showed that risk factors for T2DM patients developing a CA complication were age, duration of diabetes, high blood pressure, smoking, overweight, abnormal blood lipid levels, and polymorphism of *HPA-5*. There may be a correlation between T2DM and polymorphism of *HPA-1-3*. Polymorphism of *HPA-5* is probably a risk factor for CA complicating T2DM.

Key words: Human platelet alloantigen; Gene polymorphism; Type 2 diabetes mellitus; Carotid atherosclerosis

