Single nucleotide polymorphism of P2RY12 and CYP3A5 genes in clopidogrel resistant and non-resistant ischemic heart disease patients

Ghulam Mustafa1, Shahida Mohsin1, Nabila Akram1, Shahzad Tawwab1,2, Shabbir Hussain1 and Haiba Kaul1

1University of Health Sciences, Pakistan
2Punjab Institute of Cardiology, Pakistan
3Jinnah Hospital, Pakistan

Background: Antiplatelet therapy with clopidogrel is generally used to decrease the risk of ischemic heart disease. Environmental and genetic factors including SNPs in CYP3A5 and P2RY12 genes are attributed for this inter-individual variation in response to drug.

Objective: The objective of the current study is to examine the role of CYP3A5 rs776746 and P2RY12 rs2046934 polymorphisms in clopidogrel resistance in IHD patients.

Methods: A total of 237 IHD patients were recruited who had received 75 mg clopidogrel for more than 7 days. Platelet aggregation studies were performed on Innovance® PFA-200 system. The rs776746 and rs2046934 polymorphism were determined by PCR-RFLP.

Results: Out of selected IHD cases, 85.7% were clopidogrel responders and 14.3% were non-responders. Genotype for CYP3A5 responder, 5.4% were homozygous (*1/*1), 89.7% were heterozygous (*1/*3) and 4.9% were homozygous (*3/*3). Non-responders CYP3A5 indicated that 8.8% were homozygous (*1/*1), 64.7% were heterozygous (*1/*3) and 26.5% were homozygous (*3/*3). The allele frequencies difference among responders and non-responders were highly significant (p<0.05). P2RY12 genotypes with clopidogrel responder patients showed that 78.3% were TT alleles, 19.7% were CT alleles and 2.0% were CC alleles. Similarly, non-responder patients showed 91.2% were with TT alleles, 8.8% were CT alleles and no patient were with CC alleles. So, these frequencies difference in alleles among clopidogrel responder and non-responder P2RY12 patients were not statistically significant (p>0.05).

Conclusion: The allele CYP3A5*3/*3 showed a significant association with clopidogrel resistance whereas, P2RY12 did not show association with clopidogrel resistance in studied samples.

Biography
Ghulam Mustafa, age 29 years old from the department of Haematology University of Health Sciences Lahore, Pakistan. I have completed my M. Phil MLS in the subject of Haematology in 2016 and previously I had done my graduation in the subject of Medical Lab Technology in 2011. Regarding my job experiences; Recently, I am working as a Medical Lab Technologist from August 2009 to present date in the department of Haematology, Ittefaq Hospital Trust Lahore, Pakistan. I am also giving my services as a “Lab Manager” from August 2016 to present date in the department of Haematology of University of Health Sciences Lahore, Pakistan. I am actively involved in research project designing and synopsis and thesis writing. Regarding my research work experiences; I have done my research work on the titled “Single Nucleotide Polymorphism of P2RY12 and CYP3A5 Genes in Clopidogrel Resistant Ischemic Heart Disease Patients” which was a Higher Education Commission funded project. I did my research work on 250 patients and present this work in an Annual Conference of Pakistan Society of Haematology held at Expo Center, Karachi Pakistan on May 5-6, 2016. Currently, I have published one paper with titled “Fine mapping of chromosome 9 locus associated with congenital cataract” in an international Ophthalmology journal (IF=0.95) while five further papers are in pipeline for publications.

gmustafa798@gmail.com

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