

International Conference on

HEMATOLOGY AND ONCOLOGY

June 29-July 01, 2017 Bangkok, Thailand

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

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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 for 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.

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