

## The relation between ABCB1 (c3435t) gene polymorphism and clopidogrel resistance in Iranian patients under treatment with PCI

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**Background and Aims:** Clopidogrel, an adenosine diphosphate receptor (P2Y<sub>12</sub>) blocker is currently used for prevention of stent thrombosis. Despite certain clinical benefit using clopidogrel in patients undergoing percutaneous coronary intervention (PCI), some patients do not attain adequate antiplatelet effects. The present study was designed to investigate the role of ABCB1 gene, demographic characteristics, and pathologic condition on clopidogrel response variability in Iranian patients after percutaneous coronary intervention (PCI).

**Methods:** Patients who were candidate for elective PCI were enrolled in this study. All patients had received aspirin 80 to 325 mg daily for 1 week before PCI. Blood samples were taken from patients at baseline, 2 hours after taking a 600-mg loading dose of clopidogrel, 24 hours and 30 days after PCI. Platelet aggregation was measured by light transmittance aggregometry (LTA) with two different concentrations of two different agonists, ADP (5 & 20  $\mu$ M) and arachidonic acid (500 & 5000  $\mu$ g/mL). ABCB1 genotyping was performed by polymerase chain reaction (PCR)-restriction fragment length polymorphism (RFLP). Statistical analysis was conducted by using SPSS 16.

**Results:** Sixty seven patients were included in this study. The allelic frequencies of wild type, heterozygote and homozygote genotype of ABCB1 were 20.9%, 74.6%, and 4.5%, respectively. Maximum clopidogrel non-responsiveness (25.9%) occurred at 2 hours after taking 600 mg loading dose of clopidogrel. There were no significant associations between clopidogrel non-responsiveness and polymorphisms of ABCB1 ( $P>0.05$ ) and environmental factors.

**Discussion:** Our results showed that ABCB1 polymorphisms were not responsible for the interindividual variability in response to clopidogrel, while some studies showed the significant effect of ABCB1 polymorphisms on clopidogrel responsive variability.

**Conclusions:** Genetic and non-genetic factors had no significant effect on the antiplatelet activity of clopidogrel in an Iranian population.

**Keywords:** Clopidogrel; ABCB1 polymorphism; Post stent thrombosis