ASSOCIATION BETWEEN ABCB1 POLYMORPHISMS, THROMBELASTOGRAPHY AND RISK OF BLEEDING EVENTS IN CLOPIDOGREL-TREATED CHINESE PATIENTS AFTER PERCUTANEOUS CORONARY INTERVENTION

Background: The ATP-binding cassette, sub-family B, member 1 (ABCB1) polymorphisms may influence oral bioavailability of clopidogrel and prognosis of patients treated with clopidogrel. This study sought to investigate the impact of ABCB1 polymorphisms and the predictive value of thrombelastography (TEG) on the risk of bleeding in clopidogrel-treated Chinese patients after percutaneous coronary intervention (PCI).

Methods: Between January 2011 and July 2012, 521 consecutive patients with acute coronary syndromes who received coronary angiography or an uneventful PCI and were exposed to clopidogrel treatment for 12 months, were enrolled in the single-center registry. 20 tag single nucleotide polymorphisms (SNPs) selected from ABCB1 gene were detected by the ligase detection reaction. The antiplatelet effect of clopidogrel was assessed by TEG. The primary clinical safety end point was the incidence of bleeding defined according to Thrombolysis in Myocardial Infarction (TIMI) criteria. The primary clinical efficacy end point was a composite of cardiovascular death, non-fatal myocardial infarction, unplanned target vessel revascularization, and stent thrombosis. The follow-up period was 12 months.

Results: Overall, 16(3.1%) TIMI major bleedings and 35(6.7%) TIMI minor bleedings occurred. By receiver operating characteristic curve analysis, MA Thrombin> 66.55mm had a predictive value of TIMI major bleedings with an area under the curve = 0.704 (95%CI 0.544-0.865, p=0.005). Binary logistic regression analysis identified MA Thrombin>66.55mm, and three tag SNPs rs1045642 (C3435T), rs2235047, rs7779562 as significant independent predictors of combined TIMI major and minor bleedings (OR: 3.484, 95%CI: 1.971-7.782, p<0.001; OR: 2.721, 95%CI: 1.236-5.988, p=0.013; OR: 0.402, 95%CI: 0.211-0.765, p=0.005; OR: 0.424, 95%CI: 0.222-0.810, p=0.009). 36 ischemic events occurred. However, no significant influence of tag SNPs of ABCB1 on the occurrence of ischemic events was found. TEG did not predict ischemic events, either.

Conclusions: The ABCB1 polymorphisms and MA Thrombin were significantly associated with risk of bleeding after PCI in our study population.