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CYP2C19 LOSS-OF-FUNCTION POLYMORPHISMS, STENT THROMBOSISIN, BLEEDING EVENTS, AND MORTALITY IN PATIENTS WITH CORONARY STENT PLACEMENT

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Objectives Several studies indicated that CYP2C19 loss-of-function polymorphisms have a higher risk of stent thrombosis (ST) after percutaneous coronary interventions (PCIs). However, this association has not been investigated thoroughly in Chinese population. In this study, we aimed to determine the effect of CYP2C19 loss-of-function polymorphisms on the occurrence of ST and other adverse clinical events in Chinese population.

Methods The study population included 1068 consecutive patients undergoing intracoronary stent implantation after preloading with 600 mg of clopidogrel. CYP2C19*2 and CYP2C19*3 were genotyped by use of TaqMan SNP Genotyping Assay. The adverse clinical events recorded were death, ST, myocardial infarction, and bleeding events. The primary end point of the study was the incidence of definite ST within 1 year following PCI. The secondary end point was clinical outcome 1 year after the procedure.

Results The cumulative 1-year incidence of ST was 0.88% in patients with the extensive metabolismzers (EMs)(CYP2C19*1/*1 genotype carriers), 4.67% for patients with the intermediates metabolismzers (IMs) (CYP2C19*1/*2 or *1/*3 genotype carriers), and 10.0% for patients with the poor metabolismzers (PMs) (CYP2C19*2/*2, *2/*3 or *3/*3 genotype carriers) ($p<0.001$). One-year event-free survival was 97.8% in patients with EMs, 96.5% in patients with IMs, and 92.0% in patients with PMs. ($p=0.014$). Multivariate analysis confirmed the independent association of CYP2C19 loss-of-function allele carriage with ST ($p=0.009$) and total mortality ($p<0.05$).

Conclusions Carriage of CYP2C19 loss-of-function alleles increases the risk on ST and total mortality after PCI in Chinese population.