P-147

Impact of Clopidogrel on Clinical Outcomes in Acute Myocardial Infarction with Renal Dysfunction

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Background: Clopidogrel is an established treatment of acute myocardial infarction (AMI). However, renal dysfunction appears to be associated with reduced anti-platelet effects or increased bleeding risk of clopidogrel. We examined the impact of clopidogrel on clinical outcomes in patient with AMI according to the renal function.

Methods: From November 2005 to September 2008, 13423 patients with AMI were enrolled in the prospective Korea Acute Myocardial Infarction Registry. The patients were divided into a group with clopidogrel (n=560) and a group without clopidogrel (n=12863). The primary endpoints were major adverse cardiac events (MACE) including a composite of all cause-of-death, myocardial infarction, target lesion revascularization, and coronary artery bypass graft during 1-year clinical follow-up.

Results: In-hospital death and composite MACE at 1-month and 12-months were significantly increased associated with decreased estimated glomerular filtration rate (eGFR) regardless of taking clopidogrel. However, the clopidogrel group was significantly lower in hospital, short-term and long-term mortality throughout the eGFR compare with non-clopidogrel group. After adjusting for multiple covariates, the relative risks for 1-year mortality was lower in patients with clopidogrel therapy compared with non-clopidogrel therapy in eGFR of 45-59 and <45 ml/min/1.73m2 (hazard ratio [HR], 0.40; 95% confidence interval [CI], 0.19-0.82; p=0.013; and HR, 0.54; 95% CI, 0.30-0.97; p= 0.038, respectively), but not in eGFR >90 and 60-89 ml/min/1.73m^2 (HR, 1.08; 95% CI, 0.11-10.98; p=0.945; and HR, 0.81; 95% CI, 0.32-2.06; p=0.657, respectively).

Conclusions: Clopidogrel therapy in patients with AMI is associated with improved clinical outcomes and decreased the mortality, especially in decreased renal function.

Key Words: Acute myocardial infarction, Major adverse cardiac events