

Prognostic Predictor for Renal Insufficiency and Its Association with Diabetes Mellitus in Patients with Acute Myocardial Infarction

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Purpose: The existence of diabetes mellitus (DM) and renal dysfunction may individually or simultaneously have a negative prognostic effect on patients with acute myocardial infarction (AMI). However, very few studies are assessed the role of renal insufficiency and its association with DM in the context of AMI. The aim of the present study was to investigate the interaction between renal dysfunction and DM in patients with AMI.

Methods: We analyzed a total of 9,909 patients (63 ± 13 years, 70% men) with AMI were enrolled in a nationwide prospective Korea Acute Myocardial Infarction Registry (KAMIR) from January 2005 to August 2008. Patients were categorized into 4 group using the presence of DM and renal insufficiency ($\text{GFR} < 60 \text{ ml/min/1.73m}^2$). Group I had neither DM nor renal insufficiency ($\text{GFR} \geq 60 \text{ ml/min/1.73m}^2$) ($n=5702$); Group II had DM and no renal insufficiency ($n=1731$); Group III had no DM and renal insufficiency ($n=1432$); Group IV had both DM and renal insufficiency ($n=1044$). The primary end points were major adverse cardiac events (MACE) including a composite of all cause of death, myocardial infarction, target lesion revascularization and coronary artery bypass graft (CABG) during a 12-month clinical follow-up.

Results: During 12-month follow-up, the primary end points occurred in 1,804 patients (18.2%). There were significant differences on composite MACE in 12-month follow-up among the 4 groups (Group I, 12.5%; Group II, 15.7%; Group III, 30.5%; Group IV, 36.5%; p value < 0.001). In a Cox proportional Hazards model, after adjusting for multiple covariates, Group IV had higher mortality at 12-month (hazard ratio [HR] 2.52, 95% confidence interval [CI] 1.68–3.78, $p < 0.001$) compared to Group I. However, no significant difference at 12-month mortality between Group I and Group II, which were no renal insufficiency (HR 1.29, 95% CI 0.83–1.99, $p=0.253$).

Conclusion: In conclusion, renal insufficiency and its association with DM provide the increment of a composite MACE and the poor prognostic predictor in patients with AMI. Moreover, DM has an effect on one-year mortality in the circumstance of renal insufficiency with AMI.

Key Words: Renal Insufficiency, Diabetes Mellitus, Acute Myocardial Infarct