Decreased Renal Function Associated with Incident Adverse Cardiovascular Outcomes in Patients with Acute Coronary Syndromes

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Background: While renal dysfunction is associated with increased cardiovascular mortality following acute coronary syndromes (ACS) it is not clear whether this association exists with other major cardiovascular events and whether it is linear.

Methods: Included were 1744 patients with ACS enrolled in the 2008 ACS Israeli Survey (ACSIS). Estimated glomerular filtration rate (eGFR) was calculated using the modified diet in renal disease equation. Patients were divided into 5 groups according to the guidelines of the national kidney foundation (<45, intervals of 15 and>90 ml/minute/1.73m^2). Thirty-day composite of death, reinfarction and recurrent angina (DIA) was compared between groups.

Results: The average eGFR in all patients was 73.4±27.1 (3.4-169) ml/minute/1.73m^2. The prevalence of co-existing risk factors, prior cardiovascular disease and Killip class>1 was higher among patients with reduced eGFR. These patients however were less treated with ACE-inhibitors, angiotensin-receptor blockers, IIb-IIIa antagonists and coronary revascularization. After age-adjustment, there was a progressive increase in 30-day composite of DIA with declining eGFR (OR=3.59, 95% CI 2.18-5.99, for comparison between the highest and lowest eGFR groups). This association persisted after further adjustments for gender, diabetes mellitus, hypertension, smoking, dyslipidemia, prior cardiovascular disease, killip>1 and STEMI (OR=3.24, 95% CI 1.93-5.53). When eGFR was used as a continuous variable, the risk for 30-day composite of DIA increased by 2% for any 1 ml/min/1.73m^2 decrease in eGFR, (OR 1.02, 95% CI 1.008-1.03)

Conclusions: Renal dysfunction in ACS patients is associated with an increased risk for combined death, re-infarction and recurrent angina. This risk increases linearly with declining eGFR.