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Impact of Contrast Volume Use to Estimated Glomerular Filtration Rate Ratio on Acute Kidney Injury after Primary Coronary Intervention

Aim: The aim of this study is to investigate whether the ratio of contrast volume use to estimated glomerular filtration rate (CV/eGFR) is associated with contrast-induced acute kidney injury (AKI) following primary PCI in patients with ST-segment elevation acute coronary syndrome (STEACS).**Methods:** The study population consisting of 433 STEACS patients (336 males, mean age 66.8 ± 12.2 years) who were treated by primary PCI were studied. Patients were divided into two groups according to CV/eGFR: Group Q4, patients with upper quartile of CV/eGFR (>3.08, n=108) and Group Q1-3, other patients. AKI was defined as an absolute increase >=0.3 mg/dL or 1.5-fold from baseline in serum creatinine within 48 hours after admission. Clinical endpoint was the incidence of AKI after primary PCI. **Results:** AKI was seen in 80 patients (18.5%) after primary PCI. Q4 had higher maximum CK-MB (333 ± 341 vs. 246 ± 254 U/L, p=0.029), serum creatinine (1.48 ± 1.44 vs. 0.76 ± 0.19 mg/dl, p<0.001), contrast volume (207 ± 66 vs. 153 ± 39 mL, p<0.001), LVEF (50 ± 10 vs. 53 ± 10 %, p=0.028) and cardiogenic shock (30.6% vs. 14.8%, p<0.001) than Q1-3. The incidence of AKI was higher in Q4 than in Q1-3 (35.2% vs. 12.9%, p<0.001). Multivariable regression analysis revealed that CV/eGFR was an independent predictor of AKI (odds ratio 1.451 [1.140-1.848], p=0.002). **Conclusion:** CV/eGFR is an independent predictor of AKI following primary PCI in patients with STEACS.