

Variations in the Risk of Contrast-Induced Nephropathy Post Percutaneous Coronary Intervention

Jabara, Refat¹; Chronos, Nicolas²; Manoukian, Steven³

¹Hadassah University Hospital, Cardiology, Jerusalem, Israel; ²Saint Joseph's Hospital, Cardiology, Atlanta, USA; ³Centennial Heart Center, Sarah Cannon Research Institute, Nashville, USA

Background: Several definitions have been used to assess rates of contrast-induced nephropathy (CIN) in patients undergoing PCI. Whether the definition influences observed rates of CIN is unclear.

Aim: The Oxilan Registry was a prospective analysis of the efficacy and safety of ioxilan (low-osmolar and low-viscosity contrast medium), including rates of CIN assessed by multiple definitions, post PCI.

Methods: 400 consecutive patients undergoing PCI using ioxilan were enrolled. Serum creatinine (SCr) and estimated glomerular filtration rate (eGFR) were assessed at baseline and 3 to 5 days after PCI. CIN was defined by 1 of 4 definitions: (1) absolute increase in SCr ≥ 0.5 mg/dl over baseline, (2) relative decrease in eGFR $\geq 25\%$ from baseline, (3) relative increase in SCr $\geq 25\%$ over baseline, and (4) a composite of the preceding 3 definitions. Furthermore, patients with CIN were subdivided into 3 categories based upon whether their baseline and 3-5 day follow-up SCr was normal or abnormal: 1) normal (baseline)-to-normal (follow-up), 2) normal-to-abnormal, and 3) abnormal-to-abnormal.

Results: CIN rates were 3.3% (SCr increase ≥ 0.5 mg/dl), 7.6% (eGFR decrease $\geq 25\%$), 10.2% (SCr increase $\geq 25\%$), and 10.5% (composite). According to changes in SCr, for patients who developed CIN defined as a rise in SCr ≥ 0.5 mg/dL, none (0%) were in the normal-to-normal category. In contrast, 43% of patients with CIN defined as a $\geq 25\%$ decrease in eGFR and 50% of the patients defined as a $\geq 25\%$ increase in SCr were in the normal-to-normal category. Hospitalization was prolonged in 3.4% of patients with CIN and none required dialysis.

Conclusions: In this unselected population undergoing PCI, CIN ranged in frequency from 3.3% to 10.5% depending on the definition used and was not associated with in-hospital mortality or substantial morbidity. The wide variation in CIN and its lack of association with adverse outcomes underscore the need for a standardized, clinically relevant definition.