

Contrast Induced Nephropathy Post Percutaneous Coronary Intervention: What is the Right Definition?

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

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

Methods: From July 2006 to June 2007, 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 and $\geq 25\%$ from baseline, (3) relative increase in SCr $\geq 25\%$ over baseline, and (4) a composite of the preceding 3 definitions.

Results: Of 400 patients (age 62 ± 11 years), 19% were women, 37% were diabetic, 22% were anemic, and 8% had a history of congestive heart failure. Baseline SCr was 1.12 ± 0.3 mg/dl and 24% had an eGFR < 60 ml/min. 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). Hospitalization was prolonged in 3.4% of patients with CIN and none required dialysis. There were no deaths or severe allergic reactions. Non-CST-elevation myocardial infarction and repeat revascularization each occurred in 0.8%.

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, such as dialysis. The wide variation in CIN and its lack of association with adverse outcomes underscore the need for a standardized, clinically relevant definition.