The Incidence of Kidney Injury for Patients Treated with Intensive versus Less Potent Statin Therapy after an Acute Coronary Syndrome


Background: Statins are widely used to reduce the risk of cardiovascular (CV) events in primary and secondary prevention. Concerns have been raised that high potency statins increase the risk of acute kidney injury when compared to lower potency statins. Since analyses from observational datasets are subject to residual confounding, we examined the incidence of kidney injury in two randomized trials of intensive versus moderate statin therapy in patients after an acute coronary syndrome (ACS).

Methods: The PROVE IT-TIMI 22 trial was a randomized double-blind trial of 4162 patients to evaluate intensive (atorvastatin 80 mg daily) versus moderate (pravastatin 40 mg daily) statin therapy for the prevention of MACE following ACS. The Phase Z portion of the A-to-Z trial was a randomized double-blind trial of 4497 patients with ACS to compare the early initiation of intensive statin (simvastatin 40mg/d x1 month, then simvastatin 80mg/d thereafter) versus delayed initiation of a less intensive regimen (placebo for 4 months, then simvastatin 20mg/d). In both trials, serum creatinine was to be assessed at baseline and serial timepoints during follow-up. The incidence of kidney injury was adapted according to the Kidney Disease: Improving Global Outcomes (KDIGO) classification with baseline creatinine as the referent. The incidence of adverse events (AEs) relating to kidney injury was determined through review of the AE database.

Results: In PROVE IT-TIMI 22, the baseline mean serum creatinine was 1.03(±0.24) mg/dl; in A-to-Z, the baseline mean serum creatinine was 1.14 (±0.26) mg/dl. Across both trials, the relative change in serum creatinine over time was the same between treatment arms. The incidence of kidney injury identified through creatinine elevation was similar between treatment arms in both trials (Figure). When data were combined across trials, the incidence of AEs related to kidney injury was similar for patients on intensive versus less potent statin therapy (0.92% versus 0.91%, P=0.97, respectively).

Conclusions: Across two large randomized trials of patients after an ACS, the use of intensive statin therapy did not increase the risk of the kidney injury when compared to a less potent statin regimen.

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