Letter by Mehta Oza and Raman Regarding Article, “Ischemic Preconditioning for Prevention of Contrast Medium–Induced Nephropathy: Randomized Pilot RenPro Trial (Renal Protection Trial)”

To the Editor:

We read with great interest the work of Er et al.1 on the impact of ischemic preconditioning on patients receiving iodinated contrast for invasive angiography. We were struck by the 40% incidence of contrast-induced nephropathy (CIN) in the control group versus 12% in the group randomized to receive ischemic preconditioning. The authors refer to the Mehran risk score2 as justification for the higher rate. Analysis of their data in Table 1 reveals that 44% and 38% of the control and ischemic preconditioning patients, respectively, were in the low- or medium-risk categories. With a reported mean Mehran risk score of 13 (high-risk category) in both groups, the estimated incidence of CIN should be 26% to 30% based on the incidence in Mehran’s development and validation data sets.

Since development of the risk score model,2 there have been significant changes in management and prevention of CIN that were appropriately provided to the patients in the present study but not in the development of the risk prediction model. The current estimated rate of CIN is 7% to 13% in patients with risk factors and glomerular filtration rate of 60 or less.3,4 These observations suggest that the high incidence of CIN in the control group cited in this study could have potentially led to an overestimation of the magnitude of response to the intervention.

Additionally, the incidence of CIN varies by the criteria used and could range from 2% to 15%, which represents a 7.5-fold variation5; one study showed that using both a relative increase in serum creatinine by >25% and an absolute increase in creatinine of >0.5 mg/dL more consistently predicts adverse events after percutaneous coronary intervention.5

Intramural quality data review suggests that defining CIN using both versus either absolute and/or relative increase in creatinine in patients undergoing cardiac computed tomography with contrast for pulmonary vein angiography increased the incidence of CIN from 1.8% to 25%. Er et al.1 assigned CIN if either an absolute or relative creatinine increase occurred; we would be interested to know how many patients in the current study met the definition for CIN by applying the prognostically stronger definition of both criteria, and how restratifying the patients would affect the observed outcome.

Disclosures

None.

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References

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