
In Response:

We appreciate Drs Wu, Tu, and Malhotra’s well-informed comments on our article, “Safety of Computed Tomographic Angiography in the Evaluation of Patients With Acute Stroke: A Single-Center Experience,” and the opportunity to respond. Although the conclusions drawn from our study regarding safety of contrast medium in this setting have been suggested by others in the past,1-3 it was felt our own experience compared with a contemporary control group would provide guidance for neurologists in practice who manage acute ischemic stroke. We also directly examined whether additional imaging with computed tomographic angiography (CTA) delayed key time-interval goals or whether inclusion of CTA in the evaluation of these patients would delay tissue-type plasminogen activator administration.

As Wu et al point out, of the 289 patients included in the study, 98 did not have 24- to 48-hour creatinine values recorded. In the majority of cases, this was because these patients were discharged before that time period. The sample population included all-comers for whom the Acute Stroke Intervention Team was activated, which included stroke mimics, transient ischemic attack and non-neurological causes, and these patients were less likely to remain hospitalized for prolonged periods. We concur that acute kidney injury after contrast administration may not be fully captured in 48 hours because creatinine levels may peak days after this4; however, in this retrospective study, later data points were rarely available. Importantly, our outcomes of efficiency, which included measurement of door-to-computed tomography read times, door-to-needle times, and door-to-groin puncture times, were collected on all 289 patients because these measures occurred during the acute phase of their presentation. There were no differences in these outcomes: intravenous recombinant tissue-type plasminogen activator treatment (11.5% CTA, 8.3% noncontrast head computed tomography (NCHCT); P=0.377), mean door-to-CT read time (42.46 minutes CTA, 43.07 minutes NCHCT; P=0.700), or mean door-to-needle time (68.11 minutes CTA, 81.36 minutes NCHCT; P=0.577).

The discussion of safety outcomes was limited to only those 191 patients for whom both creatinine data points were available. As discussed in the article, there was a difference between mean creatinine values on presentation (1.39 mg/dL NCHCT, 1.06 mg/dL CTA; P=0.004), subsequent history of chronic kidney disease between groups (39.4% NCHCT, 15.3% CTA; P<0.001), and age (71.4 NCHCT, 66.7 CTA; P=0.017). We posit that many of the patients were already known to our institution, and therefore, previous kidney function or medical history was already in the electronic medical record and available to the treating physicians at presentation. Additionally, some patients were likely able to communicate a history of renal dysfunction, thus, prompting avoidance of intravenous contrast. This more likely approximates real-world clinical practice in similar institutions and falls within the scope of our analysis and should be taken into consideration by the readers when interpreting our results.

In summary, in the evolving management of acute stroke with endovascular therapy, which is rapidly becoming standard of care,1 advanced vascular imaging such as CTA adds value, and the balance of benefit versus risk with rapid administration of IV contrast without a priori knowledge of renal function seems to be acceptable for current practice.

Disclosures

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