Reply:

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REPLY:

I would like to thank Drs Mamourian, Pukenas, and Satti for their letter, "Should *American Journal of Neuroradiology* Commentary Be Evidence-Based?" I agree that commentary should indeed be evidence-based. However, with many studies, there can be more than one way to interpret the data.

I stated in my original letter that "we as radiologists should do our part to optimize patient care by eliminating redundant testing…."[1] Recently, McDonald et al[2] published an analysis of the relative use of CTA and DSA in patients with ruptured cerebral aneurysms. They showed that in a retrospective analysis of 4972 patients (3950 of whom were treated with endovascular coiling) spanning 2006–2011, the use of CTA increased from 20% in 2006 to 44% in 2011. Meanwhile, during the same time, the use of angiography remained unchanged at 94%–96%. This evidence seems to support the assertion that in patients with ruptured aneurysms, increasing use of CTA did not decrease the use of DSA. Certainly, this retrospective study has limitations, the most significant of which is that patients with nonaneurysmal subarachnoid hemorrhage were not included.

Mamourian et al also suggest that pretreatment CTA "is very helpful to determine whether the patient requires emergent surgery, it allows the family to understand the magnitude of the risks before any treatment, and it allows the interventionalist to limit the diagnostic portion of the endovascular procedure and plan before the procedure how to best address the specifics of the aneurysm configuration." However, there is no evidence that they can reference to support that claim. Where is the evidence showing that pretreatment CTA improves outcomes or patient safety among those who subsequently undergo endovascular therapy? Where is the evidence that a pretreatment CTA reduces procedural time or radiation exposure during diagnostic angiography?

Because they also state that CTA "remains the logical first examination for patients presenting with subarachnoid hemorrhage," I would suggest that they provide the evidence that supports this claim. Perhaps they should randomize all patients with SAH to either CTA first or DSA first. Then, when they can show that the CTA-first group had better outcomes and lower costs, they can support their logic. It may also have been logical to believe that endovascular therapy is better than the best medical therapy for intracranial atherosclerotic disease[3] or that logically, endovascular therapy improves outcomes over IV thrombolysis alone in patients with acute ischemic stroke.[4]

I certainly believe that CTA has an important role in the emergent setting. Patients who are too unstable to undergo angiography or need emergent resection of an intracranial hematoma are excellent candidates for a CTA. In addition, those with low suspicion for aneurysmal hemorrhage can also often be managed with CTA alone. Indeed, the original article that started this discussion showed that in patients with isolated perimesencephalic hemorrhage, negative findings on noninvasive imaging would have been adequate.[5] However, at the present time, there is inadequate evidence to imply that CTA as a first imaging technique on all patients with subarachnoid hemorrhage should be the standard of care.

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