Letter by Murai Regarding Article, “Leakage Sign for Primary Intracerebral Hemorrhage: A Novel Predictor of Hematoma Growth”

To the Editor:

We read the article by Orito et al on the predictability of contrast extravasation and hematoma expansion through the use of computed tomographic angiography (CTA) phase and delayed phase CT with great interest.

Previously, we explored indicators of hematoma growth with observations of contrast fluid extravasation using both CTA and contrast-enhanced magnetic resonance imaging. Recently, we indicated the importance of the time between injection of contrast medium and imaging, allowing sufficient time for extravascular leakage using the normal phase (nondynamic) magnetic resonance imaging. This is similar to the importance of CT as indicated by Orito et al.

Twenty years have passed since our report on detection of hematoma expansion by CTA. In our 1997 study, the time from the start of contrast material injection to the end of CTA was 3 minutes. In our CTA protocol, hematoma expansion occurred in 3 of 5 patients with a positive CTA spot sign; no hematoma expansion occurred in all 19 cases of negative spot sign. The sensitivity was thus 100% (3 correct predictions among 0 negatives), and the specificity was 90.5% (2 incorrect predictions among 5 positives and 19 correct negatives). However, interestingly, the shortening of scan times because of the progress of CT equipment might have had an adverse effect on the detection ability. In addition, in our recent letter, we pointed out the importance of defining contrast findings as >5 mm in size. This is useful to distinguish the leakage findings of the contrast agent and the vessel congestion, similar to ideas expressed by Orito et al.

Conversely, in 1997, we showed that the acute phase CTA was valuable for diagnosis of the cause (such as arteriovenous malformation, moyamoya disease, or cerebral aneurysm) of hemorrhage and detection of persistent hemorrhage. For the purposes of CT or magnetic resonance imaging examination of acute phase intracerebral hemorrhage, identification of the cause of hemorrhage is as important as the risk of hematoma enlargement for intensive care.

Unfortunately, in the current research on the CTA spot sign, the usefulness of the detection of the cause of bleeding has not been well studied and was also not investigated by Orito et al. If CTA is not necessary to detect the cause of hemorrhage, to reduce radioactive exposure, is only delayed phase CTA not enough to?

We are hopeful that furtherance of this research will prevent worsening clinical conditions and acute enlargements of intracerebral hemorrhage, as well as avoid radiation exposure.

Disclosures

None.

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