Response to Letter by Beetham and Lhatoo

Response:

We are not surprised at the comments expressed by Drs Beetham and Lhatoo, outspoken advocates of a diagnostic test which is rarely used in North America. It is disingenuous, however, to claim that any diagnostic test is "owed" to patients before a demonstrated improvement in clinical outcomes. Although we acknowledge that of the 4 definitions of xanthochromia we studied, the UKNEQAS definition performed best in terms of sensitivity and specificity, our results did not support the use of any of the spectrophotometric definitions of xanthochromia. As discussed in the article, by using 4 discrete absorbances rather than a continuous scan to estimate the specificity of the UKNEQAS definition and therefore represents a best case scenario. We also demonstrated that freezing had only minimal impact on our study results by comparing fresh and frozen results on a subset of our samples.

The central issue from our article is the limited specificity of spectrophotometry for identifying CT-negative patients with aneurysmal leaks. The authors offer unpublished data suggesting that, in their experienced hands with meticulous sample processing and using an unspecified threshold, the test could be deemed negative in nearly 90% of patients. They further suggest that positive tests can be ignored in one third of the remaining patients with a corresponding specificity of up to 94%. We argue that most North American centers would in fact perform an angiogram on all patients with a positive result for xanthochromia, including the 9 patients characterized by Drs Beetham and Lhatoo as having a "viable" but otherwise unspecified "other diagnosis", resulting in 81% of the angiograms performed be "unnecessary", rather than the 25% suggested by their letter. Furthermore, we were unable to reproduce such a high specificity using any spectrophotometric definition of xanthochromia in a large, prospective cohort study of the intended target population for the test: patients in whom emergency physicians with ready access to CT scanning deemed a lumbar puncture to be a completed copyright transfer agreement form (available online at http://stroke.ahajournals.org and http://submit-stroke.ahajournals.org).

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We applaud the call for evidence-based guidelines to direct care of these patients. However, before incorporating a technically difficult diagnostic test involving an expensive machine which reports a result that is both labile and difficult to interpret, we owe it to our patients to weigh all available evidence in a balanced and objective manner. Advocates of spectrophotometry need to clearly demonstrate what benefits this test offers for the CT-negative patient with visually clear and colorless cerebrospinal fluid, and how that offsets the unnecessary angiography and inevitable identification of asymptomatic aneurysms in patients with otherwise benign headaches.

Disclosures

None.

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http://stroke.ahajournals.org/content/38/9/e87