Should Spectrophotometry Be Used to Identify Xanthochromia in the Cerebrospinal Fluid of Alert Patients Suspected of Having Subarachnoid Hemorrhage?

To the Editor:

We read with interest the article by Perry and colleagues. There appears to be a reluctance in North America to embrace what we believe to be the most sensitive method for demonstrating bilirubin in cerebrospinal fluid (CSF), spectrophotometry, on the basis that it is not requested, that the equipment does not exist and that it is difficult to interpret. It is then somewhat disingenuous to criticize spectrophotometry by using 4 methods, the first of which (‘traditional’) has many deficiencies which have been well documented; the second of which (‘Chalmers and Kiley’) has been superseded by the third (‘Chalmers revised’); this in turn has been incorporated into the fourth method (‘UK NEQAS’) which provides the most up-to-date and evidence-based approach. As the authors quote a summary of this article in another journal and not the original, it appears as though they have not read and studied the full method and recommendations. Moreover, the authors admit that they have not performed scanning spectrophotometry, substituting the measurement at 4 wavelengths instead, which does not produce correct results. Because the basic method of calculating the key measure, the net bilirubin absorbance at 476 nm, is identical in methods 3 and 4, it is surprising that in the authors’ hands the revised Chalmers method gave poor agreement between fresh and frozen CSF but the UK NEQAS method gave good agreement. This suggests that use of frozen samples further compromises the validity of the study.

It has been previously demonstrated that spectrophotometry has increased sensitivity over visual inspection and in our experience this continues to be the case. Moreover, spectrophotometry provides an objective record that meets clinical governance requirements, which is hard to claim for visual inspection. But is it too sensitive, resulting in false-positives that would put the angiography rate up to an unacceptable level, a result that we admit would lessen the advantage of spectrophotometry? In a very recent study not to detect cases of subarachnoid hemorrhage. With an increase in CSF bilirubin who did not proceed to angiography had clear alternative final diagnoses and valid reasons for the increase in CSF bilirubin.

Once CSF spectrophotometry, performed and interpreted according to recommendations, has been shown in an appropriately powered study not to detect cases of subarachnoid hemorrhage that were negative for blood on CT scanning in those presenting early after an event, then we could dispense with CSF examination in this group. Until this time, we owe it to patients to use an objective test with a clear record of result that meets clinical governance standards and that has so far been the only test to show appropriate sensitivity for a rule out test while demonstrating satisfactory specificity.

Disclosures

None.

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