Reviewer's report

Title: Focal subarachnoid haemorrhage mimicking transient ischaemic attack - do we really need MRI in acute stage?

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Reviewer: David Werring

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In this interesting paper the authors have investigated the role of CT and MRI scanning in patients with focal subarachnoid haemorrhage over the cerebral convexities.

In 7 cases they found that all cases had CT, FFE and FLAIR imaging showed evidence of fSAH but T2wI and DWI were less sensitive. The majority of patients had additional evidence of other bleeding (microbleeds or siderosis) in 4 and 5 of the 7 respectively.

The authors conclude that CT is sufficient to investigate suspected fSAH.

Major comments

The main problem here is that the authors have not predefined a set a priori "gold standard" for detecting fSAH. What were the exact inclusion criteria? How were patients referred and from where? It seems that CT is the most widely used test at their institution in the acute setting, so in fact their gold standard for fSAH in this study is probably an acute CT. Thus their conclusion that CT is 100% sensitive is perhaps not surprising. The ideal study design would probably be for consecutive patients with suspected fSAH (e.g. suspected TIAs, or TIAs with spreading onset), then looking at the yield of CT and the different MRI techniques applied at standardised time points after the onset of symptoms. Could the authors comment on this aspect and clarify how their cases were selected. Could the study be refined to more closely approach the ideal design?

As it stands it is difficult to know which population of patients the results can be generalised to, since all those included already had fSAH on CT. In other words the authors do not know how many cases would have been missed by CT if they had routinely done MRI on all suspected cases of fSAH.

The previous paper showing that CT did not detect all cases of fSAH is important (Brunot et al, 2010), but suggests that the result seen in the current paper might reflect differences in timing and choice of investigations or population studied. This potential limitation in the interpretation of the findings should be discussed in the paper.

Since fSAH is always seems to be seen on FLAIR MRI according to these results, one could also argue that MRI is still the single best test of choice in
suspected fSAH as it gives so much information about other manifestations of cerebral small vessel diseases including microbleeds, siderosis as well as ischaemic brain injury and newer small vessel disease markers like perivascular spaces.

Although as the authors state, detecting acute fSAH on CT might be sufficient to want to avoid antithrombotic drugs, the detection of other evidence of cortical siderosis (i.e. a disseminated pattern) seems crucial to assessing the likely future risk of ICH (see Charidimou et al, Neurology 2013) and this still requires MRI.

Please clarify timing of CT and MRI in the current series in respect to the clinical events.

The fundamental conclusion that CT is a useful test in suspected TIA is highly controversial given the much higher sensitivity of MRI for small ischaemic as well as haemorrhagic lesions in this clinical setting. A move to a routine recommendation of plain CT in TIA as the authors seem to suggest might be a retrograde step. Can the authors comment on this?

Many thanks for an interesting and thought-provoking paper!

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

**Statistical review:** No, the manuscript does not need to be seen by a statistician.

**Declaration of competing interests:**

I declare that I have no competing interests