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Letter to the editor regarding "Utility of CT angiography in screening for traumatic cerebrovascular injury"

Dear Editor,

We would like to commend the authors Orlowski et al. for their study assessing the role of CT angiography (CTA) in traumatic cerebrovascular injury (TCVI) [1]. We have a few questions and comments about the study.

The authors conclude that widespread increase in CTA use for TCVI screening is justified. This is based on a higher stroke rate in CTA positive patients (9/200) relative to CTA negative patients (5/1090). Further, they have identified high risk factors associated with positive CTA results based on retrospective analysis.

We would request the authors to specify if any consistent clinical/imaging criteria were used at their institution for CTA screening. Otherwise, this might just be selection bias in ordering CTA in higher risk patients.

7/9 CTA positive patients in this study developed stroke despite being treated. This is similar to recent literature showing that a significant proportion (37%) of blunt trauma patients have stroke on admission before any imaging is performed, and 22% developed a stroke despite treatment [2]. This is important to keep in mind when assessing the role of CTA in TCVI patient outcomes.

The authors cite literature stating sensitivity of CTA for TCVI to range from 52 to 68%. Some studies reporting poor sensitivity of CTA have advocated use of digital subtraction angiography (DSA) in CTA negative patients felt to be high-risk [3]. Subsequent studies have reported CTA false-positive rates as high as 45%, raising serious questions about reliability of CTA in TCVI detection [4]. These issues would be important to keep in context when assessing a retrospective analysis of CTA results and risk factor prediction, where consistent criteria were not used for performing imaging.

A lower stroke rate in CTA negative patients may be spurious if only looking at the initial hospitalization. Although stroke tends to occur early after TCVI, a significant number are reported after 36–48 hours [2].

We share the authors experience that the number of CTAs performed for TCVI screening has considerably increased over time [5]. However, the utility and cost-effectiveness of CTA for TCVI needs further study before its widespread use can be recommended [6,7].

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