

## **DSA after CTA for BCVI: grade changes but management rarely does**

John Lucas MD, Georgia Lydon MD, Elizabeth Wallace, Cynthia Talley MD FACS

Introduction: Digital subtraction angiography (DSA) has long been considered the gold standard for diagnosis of blunt cerebrovascular injury (BCVI), but recent studies have shown computerized tomography angiography (CTA) to be a safe, quick, cheap, and effective alternative to DSA. We hypothesized that DSA use in BCVI previously diagnosed via CTA would rarely change the severity or management of the BCVI.

Methods: A database of trauma activations from a Level I academic medical center was retrospectively searched to obtain a dataset of patients who received a CTA that diagnosed a BCVI, then subsequently underwent DSA.

Results: 74 patients over 10 years were included. The Biffi grade of the injury differed on DSA from the initial CTA in 39 (52.7%) of patients. Of the 39 patients where DSA changed the grade of BCVI, management of the injury was changed in only 7 patients. 6 patients were taken off antiplatelet therapy after no injury was seen on DSA, and 1 patient underwent vertebral artery stenting after their injury grade was upgraded on DSA.

Conclusions: Surprisingly, the Biffi grade for BCVI on DSA differed from the grade given on CTA in over half of the patients evaluated. Most current guidelines recommend antiplatelet or anticoagulation therapy for patients with Biffi grades 1, 2, 3, or 4 injuries. Management can differ if the patient is symptomatic, a pseudoaneurysm is growing, or the injury is amenable to endovascular therapy. Despite DSA frequently changing the Biffi grading of BCVI seen on CTA, its use rarely changed injury management.