

## Appendix H: Screening Criteria for Blunt Cerebrovascular Injury (BCVI)

### Screening Criteria for BCVI<sup>1</sup>

#### Injury mechanism

- Severe cervical hyperextension/rotation or hyperflexion, particularly if associated with:
  - Displaced midface or complex mandibular fracture
  - Closed head injury consistent with diffuse axonal injury
- Near hanging resulting in anoxic brain injury

#### Physical signs

- Seat belt abrasion or other soft tissue injury of the anterior neck resulting in significant swelling or altered mental status

#### Fracture in proximity to internal carotid or vertebral artery

- Basilar skull fracture involving the carotid canal

### Denver Modification of Screening Criteria<sup>2</sup>

#### Signs/symptoms of BCVI

- Arterial hemorrhage
- Cervical bruit
- Expanding cervical hematoma
- Focal neurological deficit
- Neurologic examination incongruous with CAT scan findings
- Ischemic stroke on secondary CAT scan

#### Risk factors for BCVI

- High-energy transfer mechanism with
  - Lefort II or III fracture
  - Cervical spine fracture patterns: subluxation, fractures extending into the transverse foramen, fractures of the C1-C3
  - Basilar skull fracture with carotid canal involvement
  - Diffuse axonal injury with GCS  $\leq 6$
  - Near hanging with anoxic brain injury

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<sup>1</sup> Bromberg WJ, Collier BC, Diebel LN, Dwyer KM, Holevar MR, Jacobs DG, et al. Blunt cerebrovascular injury practice management guidelines: the Eastern Association for the Surgery of Trauma. *J Trauma*. 2010 Feb;68(2):471–7.

<sup>2</sup> Cothren CC, Moore EE, Biffl WL, Ciesla DJ, Ray CE, Johnson JL, et al. Anticoagulation is the gold standard therapy for blunt carotid injuries to reduce stroke rate. *Arch Surg*. 2004 May;139(5):540–5; discussion 545–546.