

USA HEALTH: DEPARTMENT of EMERGENCY MEDICINE POLICY AND PROCEDURE

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SUBJECT: Traumatic Brain Injury Guidelines

USAH Dept. of Neurosurgery and Division of Trauma Surgery have recently implemented the Brain Injury Guidelines (BIG) to establish standardized care for blunt trauma brain injured patients at USAH. These guidelines, initially published in 2014 and since prospectively validated and supported by the American Association for Surgery of Trauma, have been shown to effectively decrease healthcare utilization without altered mortality.

If a patient meets any of the diagnostic criteria for a category, listed as “Variables,” they are categorized by the highest-level category in which they meet criteria. For example, a patient with a 4mm SDH, GCS 15, on aspirin would be categorized as a BIG 3 due to the use of antiplatelet agents (listed as “CAMP” variable). The “Therapeutic Plan” describes need hospitalization vs observation, need for repeat head CT, and need for NSGY consult depending on how a patient is categorized.

For patients meeting BIG 1 criterion, who per protocol do not require a NSGY consult, require a consult to Trauma Surgery if they were not already an activated trauma.

Brain Injury Guidelines

Variables	BIG 1	BIG 2	BIG 3
LOC	Yes/No	Yes/No	Yes/No
Neurological Exam	Normal	Normal	Abnormal
Intoxication	No	Yes/No	Yes/No
CAMP	No	No	Yes
Skull fracture	No	Non-displaced	Displaced
SDH	≤ 4mm	5-7 mm	≥ 8mm
EDH	No	≤ 7mm	≥ 8mm
IPH	≤ 4mm & 1 location	5-7 mm or 2 locations	≥ 8mm or multiple locations
SAH	Trace	Localized	Scattered
IVH	No	No	Yes

Therapeutic Plan

Hospitalization	No, observation x 6 hours	Yes	Yes
RHCT	No	No	Yes
NSC	No	Yes	Yes

BIG, brain injury guidelines; CAMP, Coumadin, Aspirin, Plavix; EDH, epidural hematoma; IVH, intraventricular hemorrhage; IPH, intraparenchymal hemorrhage; LOC, loss of consciousness; NSC, neurosurgical consultation; RHCT, repeat head computed tomography; SAH, subarachnoid hemorrhage; SDH, subdural hematoma.

Notes:

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References:

1. Joseph B, Frieze RS, Sadoun M, Aziz H, Kulvatunyou N, Pandit V, Wynne J, Tang A, O'Keeffe T, Rhee P. The BIG (brain injury guidelines) project: defining the management of traumatic brain injury by acute care surgeons. J Trauma Acute Care Surg. 2014 Apr;76(4):965-9. doi: 10.1097/TA.0000000000000161. PMID: 24662858.
2. Joseph B, Obaid O, Dultz L, Black G, Campbell M, Berndtson AE, Costantini T, Kerwin A, Skarupa D, Burruss S, Delgado L, Gomez M, Mederos DR, Winfield R, Cullinane D; AAST BIG Multi-institutional Study Group. Validating the Brain Injury Guidelines: Results of an American Association for the Surgery of Trauma prospective multi-institutional trial. J Trauma Acute Care Surg. 2022 Aug 1;93(2):157-165. doi: 10.1097/TA.0000000000003554. Epub 2022 Mar 28. PMID: 35343931.