

Protocol # 10 NS

Completed 10/29



Isolated Traumatic Brain Injury Management and ICU utilization

Definitions:

Blunt mechanism only

Mild TBI is characterized as a traumatically induced physiologic disruption that is characterized by brief (<30min LOC), amnesia to events immediately before or after trauma, confusion, disorientation around the time of trauma and GCS of 13-15 after 30 minutes from event.

Mild TBI Patient with Normal Head CT

Reference EAST Mild TBI guidelines

Mild TBI patient with Abnormal Head CT

Defined as findings of intracranial hemorrhage (ICH) or skull fracture on head CT

Moderate TBI is characterized more prolonged neurologic disruption, GCS is 9-12.

Severe TBI is characterized by GCS 8 or less after traumatic injury event.

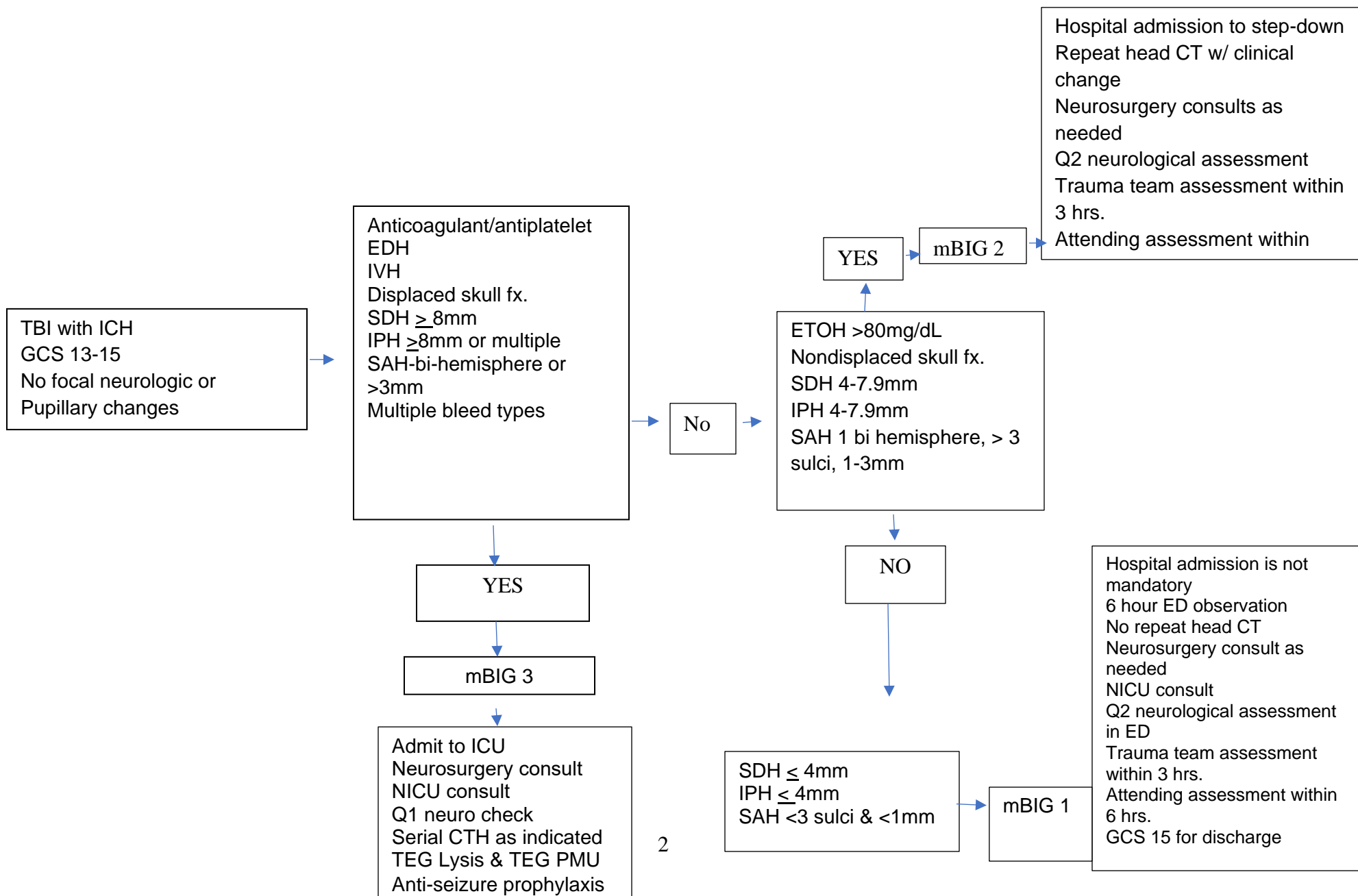
Management of Patients with Traumatic Intracranial Hemorrhage (SDH, EDH, IPH, SAH, IVH) or Skull fracture of head CT

Patients will then be stratified by characteristics of their exam, intoxication, antiplatelet/anticoagulation, characteristics of the bleed and skull fracture.

Definitions:

1. Abnormal Neurologic Exam is defined as focal neurologic exam (weakness, sensory loss), abnormal pupillary exam, GCS 12 or less
2. Intoxication is defined as alcohol level that is >80
3. Anticoagulants/Antiplatelets is defined as taking Antiplatelet agents (excluding ASA), Coumadin, Novel Oral Anticoagulants (NOACS)
4. If multiple types of bleeds then classify as mBIG3

Modified Brain Injury Guidelines



DRH Modified Brain Injury Guidelines (BIG)

Variables	mBIG1	mBIG2	mBIG3
GCS	14-15	13	12 or less
Focal Neurologic Exam	Normal	Normal	Abnormal
Pupillary Exam	Normal	Normal	Abnormal
Antiplatelets/Anticoagulants	No	No	Yes
Intoxication	No	No/Yes	No/Yes
SDH	< 4mm	4-7mm	≥ 8mm
EDH	No	No	Any
IPH	<4mm, 1 location	4-7mm, 2 locations	≥ 8mm, multiple locations
SAH	≤ 3 sulci and <1mm	1 hemisphere, >3 sulci, 1-3mm	Bi-hemispheric or >3mm
IVH	No	No	Yes
Skull Fracture	No	Non-displaced	Displaced
Therapeutic Plan			
Hospitalization	Not mandatory Observed in the ED for -6 hrs.	Step down	ICU
Frequency of Neurological assessment	Q2 neurological assessment	Q2 neurological assessment	Q1 hour
Repeat Head CT at 6 hour	No	Only with clinical change	Yes
TEG Lysis & TEG PMU	No	No	Yes
Discharge GCS	15	15	variable
Anti-epileptic Drug Prophylaxis	No	No	Yes
Neurosurgery consult	As needed	As needed	Yes
NICU consult	Yes	Yes	Yes

*Reversal agent for Head trauma patient refer to the “**DMC Guideline for Management of Anticoagulant Related Bleeding and Reversal in Adults**”

References:

Khan AD, Elseth AJ, Brosius JA, Moskowitz E, Liebscher SC, Anstadt MJ, Dunn JA, McVicker JH, Schroepel T, Gonzalez RP. Multicenter assessment of the Brain Injury Guidelines and a proposal of guideline modifications. *Trauma Surg Acute Care Open*. 2020 May 28;5(1):e000483. doi: 10.1136/tsaco-2020-000483. PMID: 32537518; PMCID: PMC7264829.

Ross M, Pang PS, Raslan AM, Selden NR, Cetas JS. External retrospective validation of Brain Injury Guidelines criteria and modified guidelines for improved care value in the management of patients with low-risk neurotrauma. *J Neurosurg*. 2019 Nov 8:1-6. doi: 10.3171/2019.6.JNS19584. Epub ahead of print. PMID: 31703198.

Joseph B, Friese 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.000000000000161. PMID: 24662858.