Traumatic Brain Injury Admission Care Guideline with Neurologic Deficit of GCS <14
University of Minnesota Medical Center

Known traumatic brain injury
GCS <14

- ❑ TTA FULL (RED) if GCS 3-8 or TTA PARTIAL (WHITE) if GCS 9-12
- ❑ STAT Head CT
- ❑ I-Stat INR, IV and Labs (CBC, BMP, UA/UC, T&S)
- ❑ EKG
- ❑ GCS upon arrival and trending (Q 15 min x2 hrs, Q 30 min x2 hrs, Q 1 hr while in ER)
- ❑ Complete neurological examination

(-) Head CT: No bleed or intracranial pathology

- ❑ Admit: To trauma or trauma obs: Diagnosis CHI or concussion
- ❑ Consider Neurology consultation
- ❑ Q1 hr neuro exams (including GCS) if in ICU
- ❑ Q2 hr neuro exams (including GCS) if in IMC
- ❑ Q2 hr neuro exams (including GCS) for less than 8 hours if on 6A
- ❑ Consider cardiac monitoring x 24 hours
- ❑ Diet: Consider NPO – SLP evaluation
- ❑ Activity: TBD by total injury assessment
- ❑ DVT prophylaxis: PCDs, LMWH or Heparin SQ (CKD)
- ❑ Repeat Head CT at 6-12 hr; earlier with change in condition (If on anticoag/antiplatelet medications.

(+) Head CT: SAH, SDH, ICH

- ❑ If on anticoagulation refer to Anticoagulation Reversal for immediate reversal
- ❑ Admit: to ICU by a surgical service (Trauma or Neurosurgery). Neuro ICU is not a surgical service
- ❑ Neurosurgery evaluation within 30 minutes. Urgency of consult request must be clearly communicated and documented.
- ❑ Q1 hr neuro exams (including GCS) if in ICU
- ❑ Q2 hr neuro exams (including GCS) if in IMC
- ❑ Cardiac monitoring x 24+ hours
- ❑ SBP <140: IV PRN medications, nicardipine gtt often first choice if uncontrolled
- ❑ Diet: NPO until cleared by Neurosurgery, SLP consult
- ❑ Activity: Bedrest until cleared by Neurosurgery & PT; HOB >30 degrees
- ❑ DVT prophylaxis: PCDs, hold chemoprophylaxis x 48h or until cleared by neurosurgery

- ❑ PT/OT consults- Within OT order - specify Cognistat or TBI screen
- ❑ Social work consult- Many patients have other injuries and may require TCU/Rehab stay.
- ❑ For patients 60 yrs or older screen with Frailty Questionnaire, then Palliative consult if appropriate
- ❑ Discharge Orders and follow up placed in patient's AVS including:
  - Specialty clinic follow up recommendations (NSG, Neurology, or others) contact information and any imaging requested
  - Concussion clinic referral as appropriate

Approved May 2020 UMMC Trauma PIPS Committee

Traumatic Brain Injury Admission Care Guideline without Neurologic Deficit or GCS ≥ 14
University of Minnesota Medical Center

Known traumatic brain injury
GCS ≥ 14

- ❑ Follow TBI on Warfarin or Novel Anticoagulant Guideline for admit considerations

(-) Head CT and Patient on Anticoagulation, Direct Oral or Antiplatelet Agents (excluding baby ASA)

If patient does not meet discharge criteria:
- ❑ Admit diagnosis CHI or concussion. Admit to ED OBS with trauma consult for tertiary exam
- ❑ Repeat Head CT 6-12 hrs
- ❑ Follow up with PCP ASAP after discharge
- ❑ See MHealth FV Anticoagulant Reversal Guidelines

(+) Head CT and Patient not on Anticoagulation

- ❑ Admit diagnosis TBI (SDH, SAH, IPH, etc). Admit trauma with neurosurgery consult.
- ❑ Serial Neuro exams (including GCS) Q 4 hours or Q shift
- ❑ Diet as tolerated
- ❑ BMP/CBC, UA/UC, and EKG
- ❑ Activity as tolerated
- ❑ DVT prophylaxis: Pneumatic compression devices, LMWH or Heparin SQ (CKD)

(+) Head CT and Patient on Anticoagulation, Direct Oral or Antiplatelet Agents (excluding baby ASA)

- ❑ Follow TBI on Warfarin or Novel Anticoagulant Guideline for admit considerations
- ❑ Follow-up head CT in 6 hours if INR greater than 3.0
- ❑ Serial neuro exams (with GCS checks) - q 4 hours
- ❑ Diet as tolerated
- ❑ BMP/CBC, UA/UC, type & screen, and EKG
- ❑ PT/OT consults- Within OT order - specify TBI screen.
- ❑ Activity as tolerated
- ❑ DVT prophylaxis: Pneumatic compression devices only until repeat Head CT if WNL may continue home anticoagulation

- ❑ PT/OT consults- Within OT order - specify Cognistat or TBI screen
- ❑ Social work consult- Many patients have other injuries and may require TCU/Rehab stay.
- ❑ For patients 60 yrs or older screen with Frailty Questionnaire, then Palliative consult if appropriate
- ❑ Discharge Orders and follow up placed in patient's AVS including:
  - Specialty clinic follow up recommendations (NSG, Neurology, or others) contact information and any imaging requested
  - Concussion clinic referral as appropriate

Approved
May 2020
UMMC Trauma
PIPS Committee

References:

1. Am Surg. 2017 May 1;83(5):429-435. Repeat Head CT? Not Necessary for Patients with a Negative Initial Head CT on Anticoagulation or Antiplatelet Therapy Suffering Low-Altitude Falls. Bauman ZM, Ruggero JM, Squindo S, McEachin C, Jaskot M, Ngo W, Barnes S, Lopez PP.

2. J Emerg Med. 2016 Nov;51(5):519-528. doi: 10.1016/j.jemermed.2016.05.045. Epub 2016 Jul 26. Risk of Delayed Intracranial Hemorrhage in Anticoagulated Patients with Mild Traumatic Brain Injury: Systematic Review and Meta-Analysis. Chauny JM, Marquis M, Bernard, Williamson D, Albert M, Laroche M, Daoust R.

3. J Neurol. 2018 Feb;265(2):315-321. doi: 10.1007/s00415-017-8701-y. Epub 2017 Dec 13. Evaluation of the yield of 24-h close observation in patients with mild traumatic brain injury on anticoagulation therapy: a retrospective multicenter study and meta-analysis. Verschoof MA, Zuurbier CCM, de Beer F, Coutinho JM, Eggink EA, van Geel BM.

4. https://www.facs.org/-/media/files/quality-programs/trauma/tqip/tbi_guidelines.ashx?la=en