

Proposed Traumatic Brain Injury Guidelines

First Care Provider:

Direct Threat Care

No Change

Indirect Threat Care

No Change

Proposed Traumatic Brain Injury Guidelines

First Responder with a Duty to Act:

Direct Threat Care

No Change

Indirect Threat Care

No Change

Evacuation Care

No Change

ALS/BLS Medical Provider:

Direct Threat Care

No Change

Indirect Threat Care

Add to 4. Breathing

- d. If suspected severe traumatic brain injury (GCS \leq 9) monitor oxygenation saturation and end tidal CO₂ if available, and apply oxygen if available to maintain saturation $>90\%$ and, maintain ET_{CO}₂ in ventilated patient between 35-45 mmHg.
- i. Avoid prophylactic hyperventilation below 35 mmHg.
- ii. If available, consider PEEP 5-12 cmH₂O

Change Shock Management/Fluid Resuscitation 7.d:

In a patient who has altered mental status due to suspected or confirmed severe traumatic brain injury (GCS $<$ 9), avoid any hypotension.

- i. Resuscitate aggressively with fluid boluses to a goal of improving mental status, strong peripheral pulses or, if monitoring is available, maintain measured SBP >90 -~~100~~ mmHg. >110 mmHg
- ii. Position patient with head elevated 30 degrees if possible with neck neutral. Avoid overly tight cervical collar or airway securing devices that may impede venous outflow from the head.

Change Analgesia 10.a.ii:

... Ketamine (at analgesic dosages, which are safe in traumatic brain injury).

Add Analgesia 10.a:

- iii. In Traumatic Brain Injury anticipate possible hypotension with overly aggressive use of analgesics for pain control.

Evacuation Care

Add to 4.c Breathing

- iv. If suspected severe traumatic brain injury (GCS \leq 9) monitor oxygenation saturation and end tidal CO₂ if available, and apply oxygen if available to maintain saturation $>90\%$

Proposed Traumatic Brain Injury Guidelines

and, maintain ETCO₂ in ventilated patient between 35-45 mmHg. Avoid prophylactic hyperventilation below 35 mmHg.

v. If available, consider PEEP 5-12 cmH₂O

Change Shock Management/Fluid Resuscitation 7.d:

In a patient who has altered mental status due to suspected or confirmed severe traumatic brain injury (GCS < 9), avoid any hypotension.

- iii. Resuscitate aggressively with fluid boluses to a goal of improving mental status, strong peripheral pulses or, if monitoring is available, maintain measured SBP ~~>90-100 mmHg~~ >110 mmHg
- iv. Position patient with head elevated 30 degrees if possible with neck neutral. Avoid overly tight cervical collar or airway securing devices that may impede venous outflow from the head.

Change Analgesia 11.a.iv:

... Ketamine (at analgesic dosages, which are safe in traumatic brain injury).

Add Analgesia 11.a:

vi. In Traumatic Brain Injury anticipate possible hypotension with overly aggressive use of analgesics for pain control.

Change Traumatic Brain Injury (TBI) 13:

- a. Prevention of hypotension (SBP < 110) and hypoxia (SPO₂ < 90%) is critical in management of TBI.
- b. TBI patients should have available monitoring equipment applied and should be resuscitated to a minimum SBP > ~~90-100mmHg~~ 110mmHg.
- c. Raise the head of the bed or stretcher 30 degrees if patient is not in hemorrhagic shock with neck neutral. Avoid overly tight cervical collar or airway securing devices that may impede venous outflow from the head.
- d. Herniation Syndromes:
 - i. Mannitol 20% - 1g/kg IV bolus.
 - ii. Hypertonic saline 3% - 3 to 5 cc/kg IV bolus.
 - iii. Hyperventilation: PaCO₂ 25-30 mmHg*.
- e. Consider seizure prophylaxis/treatment if available