

# Traumatic Brain Injury (TBI) Adult & Pediatric

## EMT STANDING ORDERS - ADULT

E

- Routine Care.
- If breathing is inadequate, ventilate with 100% oxygen utilizing normal ventilation parameters, maintaining SpO<sub>2</sub> >90%.
- If quantitative waveform capnography is available:
  - Ventilate to maintain a quantitative waveform capnography of 35 – 40mmHg.
  - Do not hyperventilate unless clear signs of cerebral herniation are present.
  - If signs of cerebral herniation are present, maintain quantitative waveform capnography of 30 – 35 mmHg. If quantitative waveform capnography is not available, ventilate at the following rates:
    - Adult: 20 breaths per minute.
    - Child: 25 breaths per minute.
    - Infant: 30 breaths per minute.
  - Discontinue hyperventilation when signs/symptoms improve.
- Assess and document pupillary response and Glasgow Coma Scale every 5 minutes.
- Check blood glucose; if hypoglycemic, see [Hypoglycemia Protocol 2.8A&P](#).
- For moderate to severe TBI, utilize long backboard for spinal motion restriction and elevate patient's head to help control intracranial pressure (ICP).

## ADVANCED EMT STANDING ORDERS - ADULT

A

- Maintain systolic BP >90mmHg.

## PARAMEDIC STANDING ORDERS - ADULT

P

- Consider intubation if GCS is <8.
  - If intubation is required, consider administration of lidocaine 1.5mg/kg IV prior to intubation.
- Consider sedation for patients that are combative and may cause further harm to self and others.
  - Midazolam 2.5mg IV/IN may repeat once in 5 minutes or; 5mg IM may repeat once in 10 minutes, **OR**
  - Lorazepam 1mg IV, may repeat once in 5 minutes or; 2mg IM may repeat once in 10 minutes, **OR**
  - Diazepam 2mg IV; may repeat once in 5 minutes.

Protocol Continues

# Traumatic Brain Injury

## Adult & Pediatric

4.7

Protocol Continued

### PARAMEDIC STANDING ORDERS - PEDIATRIC

P

- Administer fluid bolus 20ml/kg; may repeat x2 (maximum total 60ml/kg) to maintain systolic BP:
  - 1 – 16 years: a minimum of 90mmHg.
  - <1 year: 65 – 90mmHg.
- If intubation is required, consider administration of lidocaine 1.5mg/kg IV prior to intubation.
- Administer fluid in a pediatric patient with normal systolic blood pressure and who has other signs of decreased perfusion including tachycardia, loss of peripheral pulses, and delayed capillary filling time of >2 seconds.
- Consider sedation for patients that are combative and may cause further harm to self and others.
  - Midazolam 0.05mg/kg IV/IM or 0.1mg/kg IN (maximum dose 3 mg); may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05mg/kg IV/IM (maximum dose 1 mg); may repeat once in 5 minutes, **OR**
  - Diazepam 0.1mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.



#### SIGNS OF HERNIATION (2 or More)

- Extensor posturing, lack of motor response to noxious stimuli.
- Asymmetric, dilated, or non-reactive pupils.
- Decrease in the GCS >2 points from a patient's best score, in a patient with an initial GCS <9.

#### PEARLS:

- Prevention of hypoxia and hypotension are imperative to prevent secondary brain injury.
- Intubation should be approached with extreme caution as it has been associated with worse outcomes when performed in the out-of-hospital environment for patients with traumatic brain injury.

Trauma Protocol 4.7