4.7 Traumatic Brain Injury (TBI) Adult & Pediatric

EMT STANDING ORDERS - ADULT

E

- Routine Patient Care.
- If breathing is inadequate, ventilate with 100% oxygen utilizing normal ventilation parameters, maintaining SpO_2 >90%.
- If capnography is available:
  - Ventilate to maintain a capnography of 35 – 40mmHg.
  - Do not hyperventilate unless clear signs of cerebral herniation are present.
  - If signs of cerebral herniation are present, maintain capnography of 30 – 35 mmHg. If 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 2.9.
- 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

- Administer 0.9% NaCl (in the form of small boluses, i.e., 250 mL) to maintain systolic blood pressure greater than 110 mm Hg.
  - Total volume should not exceed 2000 mL without consultation with Medical Control. Do not delay transport for IV access.

PARAMEDIC STANDING ORDERS - ADULT

P

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

*For IN administration of midazolam use a 5 mg/mL concentration.

Protocol Continues

Traumatic Brain Injury Adult & Pediatric

4.7

Protocol Continues

PARAMEDIC STANDING ORDERS - PEDIATRIC

P

- Administer fluid bolus 20 mL/kg; may repeat x2 (maximum total 60 ml/kg) to improve clinical condition (capillary refill time ≤ 2 seconds, equal peripheral and distal pulses, improved mental status, normal breathing).
- 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 0.05 mg/kg IV/IM or 0.1 mg/kg IN (maximum dose 3 mg); may repeat once in 5 minutes, **OR**
  - Lorazepam 0.05 mg/kg IV/IM (maximum dose 1 mg); may repeat once in 5 minutes, **OR**
  - Diazepam 0.1 mg/kg IV (maximum dose 5 mg); may repeat once in 5 minutes.

*For IN administration of midazolam use a 5 mg/mL concentration.

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.