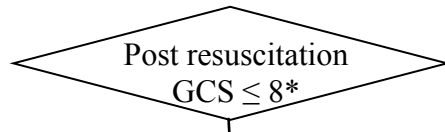


# Pediatric Severe Traumatic Brain Injury PICU Management Protocol

\*Exclude pharmacologic reasons for non-purposeful exam.



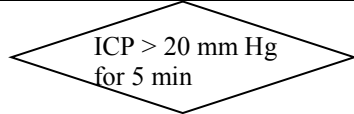
**Insert ICP Monitor or CSF Drainage**  
Begin hyperosmolar therapy (3% Saline) as needed to keep Na+ high normal (Goal Na+ 145)

Surgical Intervention as Indicated

- Epidural hematoma
- Space occupying lesion w/ mid-line shift
- Increasing ICP despite medical management.

**Maintain age appropriate CPP**

- 0-6mo:  $>50$
- 6mo-6 yr:  $>55$
- $>6yr$ :  $>60$



**\*\*Notify Neurosurgery with increased ICP requiring treatment.**

**Sedation & Analgesia, +/-Neuromuscular Blockade**

1. Fentanyl or Morphine
2. Versed only if opiate insufficient,
3. Paralytic

DO NOT wake during first 48hr after injury.  
Avoid non-essential movement, road trips.

**Throughout treatment continue the following interventions:**

- Reverse Trendelenburg 30°
- Normocarbica CO2 35-40mmHg, strict avoidance of routine hyperventilation
- Normothermia, cooling blanket as needed to prevent fever!
- Maintain age appropriate BP
- cEEG on all patients and aggressively treat all seizures. Start seizure prophylaxis for all patients.
- Neurosurgery consult



**Hyperosmolar therapy**

- 3% Saline : 3-5 cc/kg (Goal Na 150-170, target lowest Na which controls ICP; each cc/kg 3% will raise serum Na by 0.5mmol/L) OR
- Mannitol: 0.5-1gm/kg if Serum Osm  $<$ 320



**CSF drainage**

- Placement of ventriculostomy if not already done.
- If EVD already in place, discuss with NSG lowering level to increase drainage

For Acute Herniation  
Bradycardia (Tachycardia in small children)  
Hypertension  
Dilated pupil(s)  
Lateralizing signs.



**2nd Tier Therapies**

- Barbiturate Therapy if EEG active
- Decompressive craniectomy if unilateral or bilateral swelling
- Mild hyperventilation if evidence of hyperemia (PaCO2 30-35mmHG)
  - Mild-moderate hypothermia

- Bolus Mannitol (1gm/kg) OR 7.5% saline
- Hyperventilation
- Obtain STAT Head CT
- Call Neurosurgery

**Withdrawal of ICP directed therapies should occur step-wise and only after 24 hrs without escalation in therapies or raised ICP**