

**Neurosurgical Orders for Management of Severe Brain Injury:**

- Admit to SICU    Admit to Peds ICU
- Code Status     Full Code    or     See DNR Sheet
  - Diagnosis \_\_\_\_\_
  - Condition \_\_\_\_\_
  - Allergies \_\_\_\_\_
- Vital signs /Neurologic Checks q 1 hour and prn. Alert Neurosurgeon for change in neuro status
- Monitor ICP continuously
- Monitor SvO2 via pulmonary artery catheter
- Monitor PbtO2 continuously
- Activity: Bedrest
  - Head of Bed at 30 degrees; maintain head/neck in neutral position     PT eval/treat ROM in 72 hours
- IV: NS with 20 meq KCl at \_\_\_\_\_ml/hour
- Diet:             NPO     \_\_\_\_\_
- Intake/Output     Strict ongoing I/O hourly for fluid balance
- Foley to drainage
- NG to low continuous suction
- Thigh high TED stockings/Sequential Compression sleeves

**Medications: Refer to next section for medications specific to protocol management**

- Dilantin (Phenytoin)/Cerebyx (Fosphenytoin) \_\_\_\_\_ IV q \_\_\_\_ hours
- Pepcid (Famotidine) 20 mg (adults) or 0.5 mg/kg up to 20 mg total (children) IV q 12 hours
- Tylenol (Acetaminophen) 15 mg/kg in children (not to exceed 650mg in children) or 650mg in adults q 4 hours prn per rectum or nasogastric tube for temperature greater than 37 C.

**Other Meds:**

- Antibiotics: \_\_\_\_\_
- \_\_\_\_\_
- \_\_\_\_\_

**Labs:**

- Lactate/ABG on admit and q 6 hours x 48 hours. Notify Trauma MD of results
- TSH, T3, T4, and Cortisol levels on admit and at 72 hours. Notify Trauma MD of results
- CBC daily     BMP with serum osmo q 6 hours or \_\_\_\_ hours
- ABGs q 12 hours and prn with changes in status

- Keep PbtO<sub>2</sub> greater than 20 mm Hg or \_\_\_\_\_ mm Hg and ICP less than \_\_\_\_\_ mm Hg
- In first 48 hours after injury, in the event PbtO<sub>2</sub> is less than 15 mm Hg, administer 100% FIO<sub>2</sub> via ventilator up to 24 – 48 hours
  - Titrate FIO<sub>2</sub> down to 30-50% once PbtO<sub>2</sub> greater than or equal to 20 mm Hg
- Increase FIO<sub>2</sub> to 100% for 15 minutes if PbtO<sub>2</sub> less than 20 mm Hg until manipulation of other parameter to bring PbtO<sub>2</sub> greater than 20 mm Hg
- Titrate PaCO<sub>2</sub> to balance ICP less than 15 (children)/less than 20 (adults) and PbtO<sub>2</sub> greater than 20
- Determine optimal CPP for patient – Optimize CPP. Target CPP  $\geq$  60 mm Hg to begin titration.
  - Keep PCWP 8-12 mmHg or CVP 4-8 mm Hg with 250 ml (adults) or 10 ml/kg (children) 5% albumin or Normal Saline IV
  - Administer Packed RBCs IV to increase Hematocrit to greater than 33 if PbtO<sub>2</sub> < 20 mm Hg
  - Once PCWP/CVP is within range and CPP less than 55mmHg, titrate continuous infusion of IV Dopamine (2-20 mcg/kg/min) or IV neosynephrine (30-200 mcg/min adult or 0.1 – 0.5 mcg/kg/min)
- Start and titrate Propofol at 10-100mcg/kg/min IV if ICP greater than 20 (adults) or PbtO<sub>2</sub> less than 20. Apply continuous EEG or BIS monitor
- Drain CSF for ICP greater than 15 (children) or greater than 20mm Hg (adults) or \_\_\_\_\_ mm Hg
- Maintain temperature 36-37 degrees C. Institute cooling measures
- Minimize stimulation: keep lights and noise decreased
- Sedation:
  - Lorazepam (Ativan) infusion 0.01-0.05 mg/kg/hr. IV - titrate for adequate sedation. Apply BIS Monitor
  - Midazolam (Versed) infusion 0.02-0.1mg/kg/hour IV – titrate for adequate sedation. Apply BIS Monitor
- Analgesia:
  - Morphine infusion IV at 2 - 10 mg/hr (adults only dose)- titrate for adequate analgesia
  - Fentanyl infusion IV at 1-3 mcg/kg/hr - titrate for adequate analgesia
- Paralytic: only if needed for ICP control or ventilator control
  - Vecuronium IV infusion at 1 mcg/kg/min-adults (or 0.1mg/kg/hr children), Train of four q 4 hr. and prn. Titrate to 1-2 of 4

Refractory Increased ICP:

- Mannitol 0.25-0.5 gram/kg IV bolus q 4 hours if ICP greater than 15(children)/ greater than 20 (adults)mmHg; keep serum osmo less than 315 and maintain euvoemia. Hold Mannitol if Na is 155 or greater.

Hypertonic Saline (choose one)

- 200 cc of 3% Saline over 30 minutes every four hours for refractory increased ICP > 20 mm Hg
- 150 cc of 5% Saline over 30 minutes every four hours for refractory increased ICP > 20 mm Hg

Signature/Date/Time: