Severe TBI (GCS ≤ 8) management flow sheet

1st Tier Therapy

CHECK

- Patient position (head neutral, elevated HOB 30° to 45° - Check Bed Indicator)
- Equipment functioning properly (good waveform)
- Exclude seizure activity clinically
- 24 hour EEG within 24-48 hours and at 7 days, prior to discontinuing AEDs if patient comatose

FLUID THERAPY, VASOPRESSORS (IBW)

- Arterial pressure monitoring, End-Tidal CO_2 monitoring, ECG, Bladder Temperature, SpO_2, consider CVP for osmotherapy, or femoral line for refractory ICP
- Arterial line zeroed at level of tragus for CPP
- Maintain CVP 5 to 10 mmHg if placed at SVC level
- Maintain Hct 25-30% (Use packed RBC's)
- CPP Management
- PRESSORS
  - Phenylephrine 0.1 to 5 mcg / kg / min OR/AND
  - Norepinephrine 0.01 to 1 mcg /kg / min
  - For vasopressor resistant hypotension, may use Vasopressin 0.01 to 0.04 Units / min
- IV FLUIDS
  - NACL 3% infusion goal Na 145-155
  - NACL 0.9% maintenance

SEDATION/ANALGESIA TEMPERATURE MANAGEMENT (CMRO2)

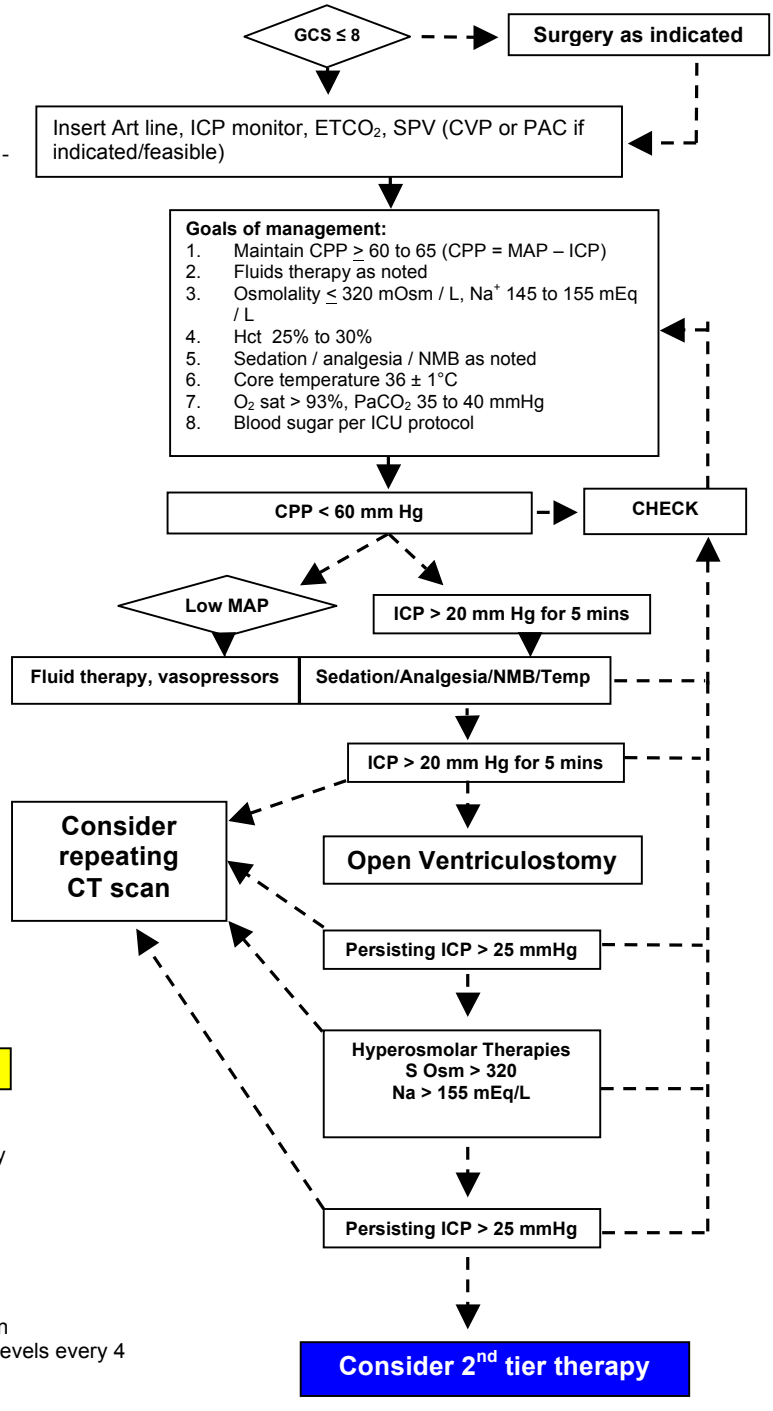
- Sedate all patient to RAS -4 to -5. Hold neuro exam except observation and pupils
- Propofol 5 to 50 mcg/kg/min iv infusion
- Fentanyl 0.5 to 5 mcg/kg/hr iv infusion
- Midazolam 0.05 to 0.2 mg/kg /hr iv infusion
- Consider neuromuscular blockade (train of four ¾)
- Temperature 36-37C. Consider 35C for refractory ICP

ICP AND PERFUSION PRESSURE MONITORING

- Ventriculostomy and parenchymal ICP if GCS ≤ 8 and clinically indicated, initially clamped
- If EVD contraindicated / unfeasible, parenchymal ICP only acceptable

HYPEROSMOLAR THERAPIES

- 23.4% 30 Ml if hemodynamically unstable OR
- Mannitol 0.25 to 0.5 gm / kg bolus OR
- Hypertonic saline (3%) 500 mL over 30 minutes or infusion
- Measured serum osmolarity/osmolar gap and serum Na^+ levels every 4 to 6 hours



2nd TIER THERAPY (Refractory ICP)

- Consider the severity of Neuroinjury vs. Neurologic outcome based on mechanism of injury, Best GCS, age, pupil reactivity, CT scan, etc.
- If hyperemia consider deepening sedation, including low dose barbiturates
- Consider CPP in lower range (50-60) if poor cerebral autoregulation (See attached CPP autoregulation algorithm)
- Consider decreasing core temperature to 35C for refractory ICP (see attached shivering algorithm)
- Consider decompressive craniectomy
- Consider Barbiturate therapy if hemodynamically stable – 1 to 5 mg / kg IBW bolus over 15 to 30 minutes then infusion 1 to 5 mg / kg IBW / hr to EEG 90% burst suppression or 4-6 burst/minute
- CVP and CO monitoring in place as indicated