

Severe Closed Head Injury
Practice Management Guidelines
UVA Trauma Service
UVA HSC 3/99

Page 1: ICP Placement, Sedation, and Monitoring

ICP Placement

ICP monitors will be placed at the discretion of the Neurosurgery service. In general, patients with GCS<9 and/or intracranial mass lesions will require ICP placement.

Sedation

ICP monitor in place



Sedation/Pain control (opioids – Fentanyl) and Paralysis (Atracurium) should be attained so that patients is unresponsive. 0-1 twitch from train of four should be present.



When mental status needs to be evaluated, D/C paralytics and switch to continuous Propofol infusion. (See non-monitored guideline)

No ICP monitor



Sedation/Pain Control (Fentanyl) and Propofol - titrate to level where patient can be easily ventilated and cooperative with medical treatment



30 minutes before scheduled neuro exam, stop Propofol and confirm with NSGY resident time of exam.



If patient can not be controlled off Propofol, call NSGY resident immediately and ask them if they with to perform exam, if they are unavailable, try to sedate with Fentanyl. Restart Propofol if necessary.



Neuro exam should be performed on NSGY rounds each morning, therefore confirm with NSGY that Propofol can be stopped at 6:30 AM.

Page 2: Resuscitation

Concurrent Resuscitation: (ALL Patients)

Stop bleeding, resuscitation with blood, blood products and crystalloid to SBP > 100, pulse < 100



Assess perfusion



LA > 2.5



Transfuse fluids to achieve clinically normal perfusion and repeat LA



LA > 2.5



Place Swan-Ganz catheter and arterial line, start renal Dopamine

Increase PCWP > 12

CI > 3.5

MVO₂ sat > 65

CPP > 70



Preferred fluids:

1. blood
2. blood products
3. albumin or Hespan
4. crystalloid



If parameters not met

Add:

Dobutamine

Search for continued bleeding

Goal LA < 2.5

Page 3: Intracranial Hypertension

Resuscitation Ongoing coupled with Intracranial Hypertension (ICP>25)

(Proceed to next step if previous intervention does not bring ICP < 25)

Insure adequate sedation and paralysis
Insure CPP > 70 by above techniques,
insure normovolemia (CVP at least 8-10, adequate UO, urine Na > 25, Serum OSM < 320)



Consider repeat head CT for known intracranial mass lesions



Elevate HOB to 30°



Mannitol 0.25 g/kg body weight bolus
(adequate volume status MUST be present before Mannitol infusion in order to avoid hypotension,
renal impairment, and systemic hypoperfusion)



Repeat Mannitol to total of 1g/kg as long as perfusion and volume status maintained



Hyperventilate to pCO₂ 25-30 mm Hg



Craniectomy



Consider:
ventricular drainage
phenobarbital
repeat Head CT

This guideline is strictly a "suggestion" and an educational tool for the management of the trauma patient. In no way is it intended to be a limited approach to the problems presented to the trauma team. Obviously, many interpretations of this guideline can be made which is quite appropriate to trauma care in individual circumstances. The approach to each patient should be individualized to fit the particular needs of the patient and the available resources of the trauma team.

