The Leeds Teaching Hospitals NHS Trust

Intraoperative Rise in ICP

Signs

- Surgeon's visible judgement
- Hypertension, bradycardia, ICP monitors

Immediate Action

- Communicate with theatre team about raised ICP

- Optimise Cerebral Perfusion
    - Commence Hyperventilation
    - Aim $PaCO_2$ 4.0-4.5 kPa (< 30 mins)
    - Check ABG
    - PaO_2 >13 kPa, PEEP <5cmH_20
    - MABP > 90 mmHg
    - Adequate depth of anaesthesia
    - Paralyse
    - MAC <1
    - Elevate head, loosen collars/ties, neutral head

- Treat seizures with cold saline irrigation (surgeons)
- Surgical Removal CSF
- Mannitol or hypertonic saline (discuss with surgeons)

Useful Drugs

Mannitol

Dose See Chart

Thiopentone

Dose 100-200mg bolus as BP allows,

Ongoing Management 0-15 mins

Assessment

- ABG
  - Insert arterial line if not present
  - Check meeting P_aO_2/P_aCO_2 targets
  - Assess acid base status and identify any metabolic causes
  - Hyponatraemia (aim 145-150 mmol/L), hypoosmolality, hepatic or uraemic encephalopathy.
- Assess for causes and manage
  - Intracranial haemorrhage - epidural, subdural, subarachnoid, intracerebral,
  - CSF flow obstruction e.g. hydrocephalus (Consider readjust cranial clamps)
  - Increased venous pressure- venous thrombosis, heart failure

Management

- Aim: Hb 80-100g/L, blood glucose 6-10 mmol/L, CVP 8-10mmHg
- Ensure normothermia 36.0 – 37.5°C
- Consider switching to TIVA, BIS <30
- Thiopentone bolus

Ongoing Management 15-30+ mins

Ongoing Assessment

- Recheck ICP – surgeon/monitors (ICP/ HR/BP)

Ongoing Management

- Ensure urinary catheter present
- Consider drugs as per below
- Consider CVC placement for vasopressors
- Consider intraoperative CSF drainage with ventriculostomy.
- Consider cooling to T<35°C
- Ensure Level 2/3 critical bed available

Other useful drugs

- IV furosemide 5-20mg IV bolus
- Benzodiazepines – midazolam IV bolus 0.1-0.2mg/kg +/- infusion
- Thiopentone coma (special circumstances) – 5mg/kg a dose of 350-500mg as an IV bolus and then infusion. Maintain CPP.
- Consider steroids (discuss with surgeon)