

Anesthesia for neurosurgery

-Preoperative evaluation: history, physical exam, lab. Findings, x-ray, consultant reports.

Study the level of consciousness.

-Premedication: Adult: Diazepam 10 mg, atropine 0.6 mg

Children: 2 mg/kg pentobarbital IM, atropine.

No narcotics: they increase Pco₂increase ICP....decrease level of consciousness

Pin point pupil.....difficult assessment

- Anesthesia: a- preoxygenation for 5 minutes

b- induction: thiopentone 2.5% according to eye lash reflex which is better related to level of consciousness

c- intubation: no more than 1mg/kg succinylcholine, unkinkable tube
avoid bucking or straining increase ICP

hyperventilation is good:

decrease Po₂.... increase capillary permeability..... increase brain volume

d- Maintenance: best 0.5% halothane + 50% nitrous oxide in O₂.

1% enflurane or isoflurane + 50% N₂O.

Fentanyl + droperidol.

No deep conc. Of volatile agents.

Muscle relaxants and ventilation

IV fluid 15 ml/kg NaCl

No 5% glucose as fluid inters brain cells and increase brain size

Techniques to reduce ICP:

a- Hypertonic solutions: use large vein in upper limb to avoid thrombosis.

1- mannitol: 20% solution 1.5-4.5 gm/kg

2- urea: 30% solution 0.5-1.5 gm/kg

put Folley catheter

Hypertonic solution side effects: increase bleeding tendency, sludging and thrombosis,
electrolyte disturbance, hemolysis

Contraindicated in renal and heart impairment

b- Cortisone: preserve the blood-brain barrier

Initial IV. 50 mg prednisolone or 40 mg methylprednisolone or 7.5 mg dexamethasone

c- Controlled hyperventilation: decrease brain volume

Side effects: Tetany.....respiratory alkalosis

Shift of O₂ dissociation curve to left.....metabolic acidosis

Cerebral vasoconstriction.....cerebral hypoxia

Decrease cardiac output

Positions:

- a- Sitting: bandage legs avoid thrombosis, danger of air embolism
- b- Supine: elevate head 10-15 degrees....good cerebral venous drainage
- c- Lateral: as in temporoparietal craniotomy
- d- Prone: Interfere with respiration

Venous congestion

Obstruction of vena cava....decrease BP and increase pressure in cerebral veins

Eye complications....pressure on eye....retinal artery thrombosis

Monitoring: CVP

BP: direct or indirect

ECG: manipulation of the brain.....arrhythmias

Postoperative care:

Ventilation and circulation care

Head-up position: Good ventilation

Decrease cerebral edema

Decrease reactionary bleeding