Anaesthesia for paediatric neurosurgery encompasses the skills and knowledge required for paediatric age group and neuro-anaesthesia.

CONDUCT OF ANAESTHESIA

MONITORING - Precedrial stethoscope, Capnography, Electrocardiography, SPO₂, NIBP/ IBP, Respiration, Hourly urine output.

INDUCTION: Fentanyl 1 μg/kg IV, Atropine 0.1 mg IV, Thiopentone titrated to effect, IV suxamethonium after ensuring mask ventilation, Intubated in left lateral position (difficult laryngoscopy), EtCO₂ and Bilateral air entry confirmation, 22 G venous cannula (left arm), Careful positioning (paddling and care of eye), Caution: ET tube kinking & Jugular venous congestion.

FLUID THERAPY: Crystalloids (Pedilyte), Colloids (PRBC), FFP.

INTRA-OPERATIVE EVENTS: Episodes of bradycardia while handling neural tissue- treated with Atropine 0.1mg IV, surgeon warned. CSF loss ~ 1200 ml, Blood loss ~ 250-300 ml, Duration of Surgery: 3½ hours.

REVERSAL OF ANAESTHESIA: Neostigmine (50 μg/kg) & Glycopyrrolate (10 μg/kg), Extubated after adequate reversal of NM blockade.

POST-OPERATIVE STATUS: Child conscious, moving all 4 limbs, pain free, Shifted to PICU for postoperative monitoring and fluid management.

REPEAT SURGERY: 3 months later child had history of repeated chest infections, startle seizures and delayed milestones. Patient lethargic, malnourished. Re-operated for residual encephalocele and revision of ventriculo-peritoneal shunt, Perioperative precautions: Prophylactic atropine 0.1mg IV, Optimization of fluid therapy, optimum analgesia, Recovery was uneventful.

PREANAESTHETIC EVALUATION

Six month female child, 5 kg, Unsupervised antenatal period, Full-term normal vaginal delivery. Neck Swelling since birth..increasing in size. History of startle seizures, Delayed milestones. No apneic spells/ cyanosis. Child moving all limbs, accepting feeds, No H/O recent URTI, fever. Physical Examination- Conscious child, large head, Dilated veins over the scalp, Large occipital encephalocele, (18x16 cm), Sutures widened, No cardiac or respiratory abnormality MRI- grossly dilated left lateral ventricle, large fluid filled cavity, midline shift, compressed right lateral ventricle and ill-developed, herniated cerebellum.

DIAGNOSIS

Giant occipital encephalocele (18x16 cm) with hydrocephalus with Arnold Chiari Malformation type III and porencephaly.

SURGERY PLANNED: Excision of encephalocele and VP shunt.

PREOPERATIVE PREPARATION: No sedative premedication, NPO…3hrs, Warm OT surroundings, Difficult intubation attempt, Patient transferred to the OT in left lateral position, IV cannula inserted preoperatively to facilitate IV induction.

LITERATURE REVIEW


PORENCEPHALY

Fluid-filled cavities develop on the brain’s surface at sites of brain damage caused by infection, ischemia, infarction or stroke (Development or genetic causes). Defective development of the gyri. In extreme cases, the entire cerebrum is replaced with fluid (hydranencephaly). Symptoms: Blindness, mental retardation, epilepsy, rigidity, paralysis or early death.

PERIOPERATIVE CONSIDERATIONS


TAKE HOME MESSAGE

Young infants posted for neurosurgical procedures present typical problems and pose unique anaesthetic challenges. (airway, positioning, fluid management & hypothermia) To cope up safely with unique pathophysiologial alterations due to intracranial abnormalities and limited reserves in pediatric patients, meticulous planning and vigilant monitoring is required. A well conducted preoperative work-up, rational control of physiological variables, good communication and coordinated team approach are cornerstones of excellence in the delivery of peri-operative care.

MULTIPLE ANAESTHETIC EXPOSURES IN AN INFANT WITH PORENCEPHALY

PERIOPERATIVE CONSIDERATIONS

Dr Indu Sen, Dr Suman Arora, Dr JK Mahajan*, Prof J Wig
Department of Anesthesia & Intensive Care and Paediatric Surgery*
Post Graduate Institute of Medical Education and Research, CHANDIGARH, INDIA