

Pediatric Anesthesia

Newborn (neonate): 1st month of life

Infant: 1st year of life

Child: 1st twelve years of life

Problems:

- 1- Infant head is large; neck muscles are inadequately developed to maintain any position without support.
- 2- Thoracic cage is small and weak, expansion depend on diaphragmatic contraction because ribs are horizontally positioned so expansion is limited.
- 3- Abdomen is weak
- 4- Upper airway obstruction commoner because of narrow passages of nose, glottis and trachea , also the presence of lymphoid tissue and large tongue.
- 5- High larynx (C4 level), adult larynx C6
- 6- Epiglottis is stiff and U shaped, adult is flexible and flat
- 7- Cricoid ring is the narrowest part of the larynx so tube may pass through glottis but stuck at cricoid lead to trauma
- 8- Require larger amount of oxygen because high BMR
- 9- Distended stomach need Ng tube for better breathing
- 10-Heart rate is about 120/min. until 5 years of age
- 11- Spinal cord extends to L3 at birth. At one year at L1
- 12-Sensitive to hyperthermia and hypothermia
- 13-Blood volume 7-8% of weight. Replacement of loss if more than 10% of volume
- 14-Rapid blood transfusion can cause acidosis so give NaHCO_3 1-2 meq/100 ml of blood loss

Preparation for surgery:

- 1- Psychological aspect
- 2- Preoperative evaluation
- 3- Food and fluid restriction: For infants milk 4 hours before surgery, water or dextrose 2 hours before surgery. Children over 2 years restrict 4 hours before surgery

Anesthesia for pediatrics:

- Induction

1- O₂, N₂O, halothane in increasing concentration

2- IV pentothal

- Intubation:

Straight laryngoscope

Up to 2 weeks do awake intubation to avoid aspiration, Scoline for

Older. Scoline lead to bradycardia so give atropine. No fasciculations in infants.

- Maintenance:

1- N₂O, O₂, Halothane with spontaneous or assisted ventilation

2- N₂O, O₂, Halothane or narcotics, relaxant with assisted ventilation

Relaxants: Pancuronium is one of the best. Tubocurarine lead to sensitivity.

Causes of prolonged apnoea: Hypothermia, high halothane concentration, antibiotics, respiratory acidosis.

- Extubation: Done under light anesthesia with spontaneous ventilation. If laryngospasm developes so give Scoline.

-Rectal anesthesia: Thiopentone 10 mg/kg, thiamylal, methohexital through rectal tube. The elimination of rectal thiopentone require 48 hours so need good observation.

- Ketamine is usefull. IM, IV. In children less than 2 years, there may be respiratory depression.

-Recovery: maintain temperature at 35C, semiprone position.