Pediatric Dental Anesthesia

Dental treatment is one of the most common reasons for administering general anesthesia to children. Operative pediatric dentistry may involve the restoration of teeth to treat dental caries, extraction or surgical removal of teeth that cannot be restored, and scaling of teeth to prevent periodontal problems. Children with extensive dental caries who lack the cooperative ability to accept treatment under local anesthesia or those with certain systemic conditions like cerebral palsy who cannot adequately control their own physical movements and intellectually disabled children are some instances where general anesthesia for dental treatment is indicated.

I. Surgical Considerations

• HOB turned 90 or 180 degrees towards the dentist, with slight Trendelenburg and shoulder roll to facilitate occipital extension. The patient’s head should be at the top of the OR bed
• Nasal Rae Endotracheal tube is preferred by dental surgeons, since this provides unobstructed access to all four quadrants of the mouth and facilitates assessment of tooth alignment
• Oral Rae ETT may be used when nasal intubation is contraindicated. Such patients include severe septal deviation, obstruction, difficult airway, or cleft lip/palate. The dentist will work on one portion of the mouth and move the ETT to the other side halfway through the case
• A throat pack is inserted by the Dentist to protect the airway and must be carefully positioned to prevent airway obstruction (counted by circulator and time in and out should be noted on the board)
• Protect eyes from surgical prep/blood with occlusive patches (ie. Blue tape) and Opti-guard™ or 4x4 gauze to cushion the eyes against unintentional contact
• The dentist will wrap the head with towels or a sheet. Make sure all breathing circuit connections are tight and that the forehead is padded where the ETT connects to the circuit to protect from direct pressure

II. Pre-operative Considerations

• Consider sedation based on behavioral needs of the patient (i.e. fear, anxiety)
• Parental presence for induction may prove beneficial when anxiolytic medications prove insufficient
• Determine the cause for operative dental treatment (dental caries, extractions, etc.)
• The airway should be carefully assessed to allow planning for intraoperative airway management. The presence of facial swelling, due to either dentofacial infection or trauma, is of particular significance as this may limit mouth-opening

III. Case Setup

• Airway – Nasal Rae ETT or Oral Rae ETT secured with tape. Ensure nare is free from direct ETT pressure. Tissue trauma may occur to nare if not appropriately positioned (gauze padding may be necessary)
• Magill forceps
• Shoulder roll
• Head Gel Ring
• PIV x 1
• Medications:
  • Pre-Medication – Oral/IV Midazolam or Intramuscular injection of Ketamine, if non-cooperative
Afrin (Oxymetazoline) 0.05% Spray – 2-4 drops via 3ml syringe in nare prior to nasal intubation
  - Spraying bottle upside down delivers 75x the volume compared to right side up
- Induction Drugs - Lidocaine, Propofol, Rocuronium
- Emergency Drugs – Succinylcholine, Atropine, Epinephrine
- Analgesia – Fentanyl, IV acetaminophen, Ketorolac (Depends on Dentist)
- Anti-emetics – Ondansetron
- Antibiotics for Dental Procedures:
  - Refer to Duke Pediatric Antibiotic Prophylaxis for Surgical Procedures guideline

N. Monitoring
- Standard monitors, TOF, core temperature monitor
- An underbody cocoon should be applied to reduce convective heat loss and the room temperature should be increased to reduce radiative heat loss.
- Place the cocoon below the level of the shoulders as excessive heat interferes with dentistry supplies

V. Intraoperative Considerations
- Neuromuscular blockade is optional
- Most pediatric dentists will not use local anesthetics because facial numbness may startle younger patients when they emerge from anesthesia. However, if used, LA include lidocaine and prilocaine, which are commonly supplied in 2.2 ml cartridges
- Administration of acetaminophen may alleviate postoperative residual soreness
- Small doses of opioid may be required (0.5-1mcg/kg Fentanyl)
- Anti-Inflammatory – Dexamethasone 0.25mg/kg, max 10mg

VI. Postoperative Considerations
- Ensure that the throat pack is always removed at the end of the procedure, before the patient’s emergence from general anesthesia
- Assess for residual bleeding prior to extubation
- Gentle oropharynx suctioning with direct visualization
- ETT should be removed when the patient is breathing spontaneously and has the return of airway reflexes to protect the airway from secretions and blood
- Left lateral position with a slight degree of head-down tilt to encourage drainage of any blood and secretions away from the larynx to prevent laryngospasms
- Analgesia – Local infiltration, acetaminophen, and opioids

Revision History:
Version: 1          Created by: Kevin Tirado, CRNA          Date: 06/2021