Physiologic Considerations

Pediatric patients are more prone to rapid desaturation and respiratory complications

- Respiratory irritability gives a greater chance of producing atelectasis and lung hypventilation
- Newborns have double the oxygen consumption per kg of adults. This is due to the presence of mbf causing a left shift in the hemoglobin dissociation curve

Infants desaturate at a significantly faster time than older children and adults. Preshyoxemia is critical before intubation to avoid hypoxemia

Anatomic Considerations

Large adenoids and tonsils can obstruct ET tubes and bleed. Avoid blind nasotracheal intubation during acute resuscitation in children <12 yrs.

- High anterior airways restrict visualization of vocal cords. Properly positioned before intubation, and alternate laryngoscopy depth to visual cords
- Small criothyroid membrane makes surgical cricothyroidotomy difficult. Need to cricothyrotomized for infants when surgical airway needed

Disphagoeutic excursion required for ventilation. Inflation of the stomach can compromise this; decompress with an orogastric as respiratory tract

Management

Endotracheal Tube Sizing

Use Both:

- Broselow-Luten Tape
- Age-Based Rule

Other Considerations

LMA’s and other supraglottic devices are the preferred rescue airway

- Cuffed ET tubes preferred when high inflation pressure needed. Use a size one half smaller than estimated uncuffed

Needle cricothyrotomy is the preferred surgical airway for pediatric patient. It is not a definitive airway as it allows oxygenation and not ventilation

NRMBA's

- Atropine may be considered in infants <1 year with pre-procedure bradycardia due to exaggerated vagal response.
- Routine use is not recommended

Pretreatment

- Sedatives should be selected based on efficacy, adverse effects, and clinical situation. I.e. intubation is preferred for septic shock as it maintains MAP

Sedatives

- Rocuronium should be used extremely caustically if anticipating a can't intubate can't ventilate situation
- Succinylcholine can cause arrest, hyperkalemia, and in rare cases bradycardia. Preferred for status epilepticus

REFERENCES:

Pediatrics in Emergency Medicine: Concepts and Clinical Practice
- 9th ed. 2017. Chapter 16 Airway Management for the Pediatric Patient

Infographic: Pediatric Airway Differences

Published by Dr. Andrea Tobin, Key graduate
Edited by Alyvin Chin, MD, MSc, and James Leung BSc, MD, FRCP