

Premedication for Endotracheal Intubation

East Bay Newborn Specialists Guideline

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Background

Endotracheal intubation is a common procedure in the NICU, and one which is known to cause significant physiologic changes in the neonate (hypoxemia, bradycardia, intracranial hypertension, systemic hypertension, and pulmonary hypertension), many if not all of which may be modulated by pre-medication.

Several trials have demonstrated that the use of premedication for intubation significantly improves intubating conditions, decreases the time and number of attempts, and minimizes intubation-related airway trauma. In addition, a consensus statement from the International Evidence-based Group for Neonatal Pain concluded that tracheal intubation without the use of analgesia or sedation should be performed only for resuscitation in the delivery room or for life-threatening situations associated with the unavailability of IV access. Both the AAP and the Canadian Paediatric Society have recently released statements that infants should not be intubated without pre-medication except in emergencies.

Medications:

Medications with rapid onset and short duration of action are preferred. The following are the current recommended medications for rapid sequence intubation as outlined by the American Academy of Pediatrics, and consist of an opiate sedative, anti-cholinergic, and muscle relaxant. Although both the AAP and Canadian statements suggest using Atropine, there is limited data to suggest that it is either necessary or improves intubation success. Atropine is rarely used for controlled intubations in the OR.

Analgesic:

- Fentanyl (preferred) 1-4 mcg/kg IV
- Morphine (acceptable) 0.1 mg/kg IV

Comments:

Give slowly to avoid chest wall rigidity
Reverse with Naloxone
Reversible with Naloxone

Anticholinergic

- Atropine (preferred) 0.02 mg/kg IV

Caution with hx of arrhythmia or ventricular dysfunction

Muscle relaxant:

- Vecuronium 0.1 mg/kg IV
- Succinylcholine 1-2 mg/kg IV

Reverse with atropine and Neostigmine

Contraindicated in presence of hyperkalemia, FHx of malignant hyperthermia, digoxin therapy, muscular dystrophy

Considerations:

- Use extreme caution when administering muscle relaxants to infants with known or suspected airway anomalies (i.e Pierre Robin sequence) since intubation in these infants can be very difficult, and infant's own respiratory effort may be essential for maintaining an open airway. Consider alerting anesthesia as back up in these circumstances.

- For difficult intubations, consider using a laryngeal mask airway (LMA) as a temporary device until infant can safely be intubated.
- Use of sedative alone (i.e. benzodiazepines) without analgesics should be avoided.
- A muscle relaxant without an analgesic should be avoided, but is preferable to using no pre-medication
- For circumstances in which IV access is not available, IM should be considered.

References:

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