HACKETTSTOWN REGIONAL MEDICAL CENTER

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PEDS
(Scope)

Title: Pediatric Rapid Sequence Intubation (RSI)

Purpose:
1) To provide Rapid Sequence Intubation to those pediatric patients requiring airway management guidelines for Emergency Department personnel to provide immediate intervention for airway preservation.

Definition:
RSI is a method of quickly obtaining optimal intubating condition via the delivery of an induction agent (to induce unconsciousness) followed in rapid succession by a paralytic agent.

Goal:
The goal of RSI is to facilitate the passage of an ET tube into the trachea quickly and efficiently. RSI eliminates or reduces the need for ventilating the patient during the procedure unless oxygenation is impaired and the bag-valve mask must be used to maintain adequate saturation. This technique should minimize the chances of aspiration of stomach contents during the intubation

Supportive Data
1) Airway maintenance/protection
2) Trauma
3) Burns
4) Loss of protective reflexes
5) Pulmonary, respiratory failure
6) CNS
7) Infection
8) Trauma/spinal cord trauma
9) Chest wall deformity (kyphosis)
10) Upper airway disease (i.e. croup, epiglotitis) lower airway disease (bronchioliitis; asthma)

Personnel:
RN
Physician
Respiratory therapist
Second nurse

Contraindications:
Spontaneous breathing with adequate ventilation
Major facial or laryngeal trauma
Upper airway obstruction
Distorted facial or airway anatomy

MEDICATIONS (Intravenous)

1) Sedating Agents

	DOSE	ONSET	DURATION
Ketamine[2] (Ketalar [R])	1-2 mg/kg	<1 min	5-10 min
Diazepam (Valium [R])	no recommendation	2-10 min	240-360 min
Midazolam (Versed [R])	0.15 mg/kg	2-3 min	30-60 min
Fentanyl (Sublimaze [R])	2-3 mcg/kg	2-3 min	45-60 min
Propofol (Diprivan [R])	2.5-3.5 mg/kg (3-14 yrs)	<1 min	3-10 min
Etomidate (amidate [R])	0.2-0.3 mg/kg (>10 yrs)	<1 min	4-10 min

2) Paralytic Agents	**DOSE**	**ONSET**	**DURATION**
Succinylcholine (Quelicin [R])	2 mg/kg	< 1 min	6-10 min
Vecuronium (Norcuron [R])	0.1 mg/kg (1-10 yrs)	2-3 min	30-40 min
Rocuronium (Zemuron [R])	0.6-0.9 mg/kg	1-1.5 min	10-30 min

3) Anticholinergics	**DOSE**	**ONSET**	**DURATION**
Atropine [1]	0.01-0.02 mg/kg (Max 0.4 mg)	2-4 min	Dose dependent
Glycopyrrolate (Robinul [R])	0.005 mg/kg IV (2-12 yrs)	1 min	420 min (7 hrs)

4) Anesthetic Agents	**DOSE**	**ONSET**	**DURATION**
Lidocaine [3] (Xylocaine [R])	1.5 mg/kg	1.5 min	10-20 min

[1] Atropine:
Children have a more pronounced vagal response to ETI than adults. This response can be minimized with atropine pre-treatment. Atropine also decreases secretions and allows for improved visualization of landmarks. Atropine is indicated in children up to 5 years of age.

Bradycardia and asystole have been reported with succinylcholine use in children. Atropine 0.02 mg/kg pre-treatment in children under the age of 10 receiving succinylcholine is essential.

[2] Ketamine:
Is relative contraindicated in patients with hypertension, head injury, psychiatric problems, glaucoma, and open globe injuries. Ketamine produces excessive airway secretion and should be pretreated with Atropine 0.01-0.02 mg/kg or Glycopyrrolate 0.005 mg/kg.

[3] Lidocaine:
1.5 mg/kg is given to decrease the increased intracranial and intraocular pressure associated with ETI.

Equipment List:

Cardiac Monitor
O_2 Source
Uncuffed/Cuffed ET Tubes
(2.5-5.0) (5.0-8.5)
Surgilube
Laryngoscope – straight blade 0-3, curved 2-4
Oral airways, suction equipment, yankauer, flexible suction cath
Ventilation masks, bag-valve mask
Nasogastric tube…lavage setup
Cricothyrostomy tray
ET Tube stylets
Stethescope
Cloth tape
Gloves
Ventilator
Pediatric Code Cart at Bedside

PROCEDURES	KEY POINTS
1. History and Assessment	Assess for RSI Contraindication. Focus on face, neck, c-spine, check the teeth, ability to open the jaw, etc.
2. Preparation of equipment and medication	**NEVER PARALYZE A PATIENT WITHOUT AT LEAST ONE SECURE IV ACCESS**! Prepare alternative airway access in the event of failed ETI. Have Cricothyrotomy available.
3. Rapid Sequence Intubation	TIME – ACTION Zero minus 5 minutes – Pre-oxygenate Zero minus 3 minutes – Pretreatment medications TIME ZERO – Induction Agent AND Muscle Relaxant Zero plus 20 seconds – Sellick's Maneuver (cricoid pressure) Zero plus 45 seconds – INTUBATE, secure Endotracheal tube, verify Tube position.
Refer to Regimens for RSI	See TABLE 1
Refer to Algorithms for RSI	See ATTACHMENT 1
4. Monitor	Obtain patients baseline V/S, ECG, $Sa0_2$ BP in order to be alert to change during RSI post RSI, ET, CO_2 should be monitored.

References: Lee, BS. Pediatric Airway Management, Clinical Pediatric Emergency Medicine, 2001
Marfin, Timothy, MD and Ghafour, Abed, MD, Pediatric Emergency Care, 2002