



MIAMI TOWNSHIP FIRE & EMS CLERMONT COUNTY, OHIO *PROCEDURE PROTOCOLS*



RAPID SEQUENCE INDUCTION (RSI)

Historical Findings

1. Age \geq 1 years old.
2. Critically ill or injured patient requiring an emergent definitive airway and/or invasive ventilatory support.

Relative Contraindications

1. Any patient who could create a “*Can’t Intubate, Can’t Ventilate*” scenario.
 - A. Laryngeal edema (epiglottitis, angioedema).
 - B. Patient entrapped with minimal access to airway.
 - C. Difficult airway anatomy that could make bag mask ventilation difficult or impossible.

Absolute Contraindications For RSI Using Succinylcholine (Anectine)

1. History of malignant hyperthermia.
2. History of skeletal muscle myopathies:
 - A. Duchenne’s muscular dystrophy
 - B. Guillain-Barre syndrome
 - C. Multiple Sclerosis
 - D. Amiotrophic Lateral Sclerosis (ALS)
3. Evidence of acute hyperkalemia:
 - A. ECG in hyperkalemia:
 - i. Diffuse peaked T waves, Widened QRS
 - ii. Prolonged PR and QT interval
 - iii. Flat or isoelectric P waves
 - B. Dialysis patients who are overdue for dialysis treatment.
 - C. Patients recently discharged 5 days post burn or crush injury.



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Physical Findings

1. Acute Respiratory Failure:
 - A. SaO₂ of <90% ETCO₂ > 50 mm Hg
 - B. Dyspnea, tachypnea
 - C. Accessory muscle use and fatigue
 - D. Altered mental status (irritability, lethargy)
2. Neurological Deficit: GCS score ≤ 8:
 - A. Severe traumatic brain injury (TBI)
 - B. Intracranial hemorrhage/stroke
 - C. Overdose
 - D. Status epilepticus
3. Acute Airway Emergency:
 - A. Severe burns to the upper airway
 - B. Other trauma with potential to compromise airway (i.e. soft tissue trauma to the neck with expanding hematoma)

Protocol

1. Establish a patent airway and **pre-oxygenate** all patients with oxygen via non-rebreather mask at 10-15 lpm. Provide bag-mask ventilations to patients who require ventilatory assistance, apply cricoid pressure (Sellick's Maneuver) and deliver small tidal volumes to minimize gastric distention during ventilations.
2. Place patient on continuous cardiac monitor, pulse oximeter, and capnography.
3. Complete a neurological exam including GCS score.
4. **Prepare equipment** including suction, intubation adjuncts, rescue airways, and emergent cricothyrotomy kit.
5. Initiate IV access with a saline lock or 0.9% normal saline KVO.
 - A. If IV access is unsuccessful obtain IO access with EZ-IO device.



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6. **Pre-medicate:**
 - A. Any patient with suspected medical and or traumatic head injury administer lidocaine (Xylocaine) 1.5 mg/kg IV/IO 3 minutes prior to induction to blunt reflex spike in ICP. (This includes TBI, CVA, intracranial bleeds, and seizures)
 - B. Pediatric age < 10 years administer atropine 0.02 mg/kg IV/IO (max dose 0.5 mg) 3 minutes prior to induction to prevent vagal mediated bradycardia.
7. **Induction:** administer etomidate (Amidate) 0.3 mg/kg IV/IO or midazolam (Versed) 0.1 mg/kg IV prior to paralysis.
 - A. Midazolam (Versed) should not be used in hemodynamically unstable patients with systolic B/P < 100.
8. **Paralysis:**
 - A. Adult > 10 years administer succinylcholine (Anectine) 1.5 mg/kg IV/IO.
 - B. Pediatric < 10 years administer succinylcholine (Anectine) 2 mg/kg IV/IO.
9. **Paralysis if Succinylcholine is contraindicated for Adult & Pediatric:**
 - A. Administer rocuronium (Zemuron) 1 mg/kg IV/IO.
10. Apply cricoid pressure (Sellick's Maneuver) and maintain until ET tube is in place, verified and secured. Figure 1.
11. When patient is paralyzed, **perform endotracheal intubation** (approximately 45 seconds for both succinylcholine & rocuronium).
12. If unable to intubate the patient after the first attempt, initiate 2 person bag-mask ventilations with a basic airway adjunct for 1 minute while maintaining cricoid pressure (Sellick's Manuever) to minimize gastric distention.
13. Consider utilizing the following for subsequent intubation attempts:
 - A. Bougie intubating stylet.
 - B. External laryngeal manipulation (**B**ackward, **U**pward, **R**ightward, **P**ressure)
 - C. Head elevation ear to sternal notch position. (*NOT IN TRAUMA*)



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14. **Verify and prove tube placement** with visualization, auscultation and capnometry/capnography. Continually monitor capnometry/capnography.
15. **Secure** the endotracheal tube, note the depth in cm at the teeth, and apply soft restraints to prevent extubation.
16. If the patient requires **sedation** after intubation:
 - A. Adult: administer midazolam (Versed) 1-5 mg IV/IO titrated up to a max dose of 0.1 mg/kg. *Max single dose is 5 mg.* Systolic B/P must be ≥ 100 mm Hg.
 - i. If systolic blood pressure is ≤ 100 mmHg, administer lorazepam (Ativan) 1 mg IV/IO diluted
 - B. Pediatric: administer midazolam (Versed) 1 mg IV/IO titrated up to a max dose of 0.1 mg/kg. Withhold for hypoperfusion. Heart rate, B/P, and clinical picture will dictate the presence of hypoperfusion.
17. **Contact destination hospital for notification and consult physician for orders for rocuronium (Zemuron) 1 mg/kg IV/IO if prolonged paralysis is required.**
18. If successful intubation has not been achieved after 3 attempts proceed to King LTD-S rescue airway insertion.
19. If rescue airway insertion is unsuccessful, resume 2 person bag-mask ventilations with a basic airway adjunct while maintaining cricoid pressure (Sellicks Maneuver) to minimize gastric distention.
20. If unable to ventilate the patient utilizing the bag-mask procedure proceed to emergent cricothyrotomy.

Notes:

Figure 1. Proper Cricoid Pressure

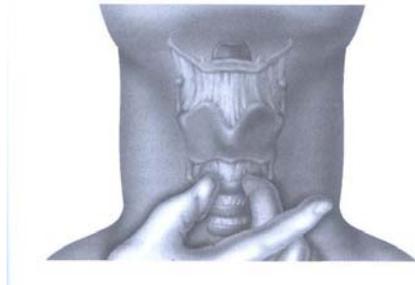


FIG. 5-8. Proper application of Sellick's maneuver (cricoid pressure) involves the thumb and long finger properly positioned on the cricoid cartilage and applying posterior pressure to occlude the esophagus against the anterior surface of the C-6 vertebral body.