AirLink Critical Care Transport

Adult – Rapid Sequence Intubation (RSI)

SECTION A – OBJECTIVES

1. To facilitate oral intubation
2. To protect from ICP increases with direct laryngoscopy
3. To reduce discomfort of intubation in conscious patients

SECTION B – PROTOCOL

Indications:

1. Potential or actual airway compromise due to depressed sensorium (GCS < or = 8), or whose combativeness threatens the airway, spinal cord stability, or transport safety
2. Patients who demonstrate a high probability of airway compromise during transport (i.e. smoke inhalation or severe facial trauma with bleeding)
3. Respiratory failure or the need for ventilatory assistance, or airway protection

Contraindications / considerations for use of succinylcholine:

1. Inability to ventilate adequately with bag-valve mask in the event of failed intubation
2. Crush or burn injuries more than 24 hours old (due to potential for hyperkalemia)
3. Penetrating eye injuries (relative) due to increased intraocular pressure
4. Medical history including malignant hyperthermia, myasthenia gravis, muscular dystrophy, or hyperkalemia

Procedure:

1. Gather equipment: bag-valve mask (BVM) attached to oxygen, suction, laryngoscope or video-laryngoscope, ET tubes, stylet, 10ml syringe, ET tube holder / tape, end-tidal CO2 detector, alternative airways, bougie tube introducer, and all required medications.
2. If pH < 7.1 prior to intubation, then give 1 amp of Na Bicarbonate IV prior to intubation if metabolic origin.
3. If concern regarding patient decompensating post intubation, take 0.1ml from 10 mg/ 1ml vial of Neosynephrine, and add to 10 ml prefilled NS syringe. Each 1ml = 100 mcg.

Dose 100-500 mcg IV bolus for hypotension. Have the syringe drawn up and ready to use.

4. Monitor patient continuously throughout procedure with ECG, BP, and oximetry

5. Pre-oxygenate with high-flow oxygen via mask. Elevate the HOB to at least 20
    a. degrees, even consider in trauma (elevate the backboard). Have NC ready and on for passive oxygenation.

6. With head-injured patients or risk of increased ICP, consider pre-medicating with :
    a. Lidocaine 1.5mg/kg slow IV push, and/or Fentanyl 1-2 mcg/kg over 30-60 seconds, about 3-5 minutes prior to intubation. Give Fentanyl only if BP >120 mmHg systolic and required for blunting sympathetic innervation (ie. Spontaneous head bleed).

7. Sedate with Etomidate 0.3 mg/kg (onset 15-45 secs, duration 3-12 mins). Repeat boluses of Etomidate should NOT be used for maintenance of sedation after intubation secondary to adrenal suppression or you can use:

8. Ketamine 1-2 mg/kg IV (onset 45-60 secs, duration 10-20 mins) for those patients in whom a difficult airway is suspected, or those patients with suspected lower airway obstruction. i.e. Status asthmaticus / COPD / severe bronchiolitis. Can be given with suspected head injuries and potentially very useful in shock states. Use caution in those patients with hypertension as it may further elevate blood pressure.

9. Versed 0.1mg/kg may also be utilized for sedation, however is not recommended for first-line choice due to prolonged onset of action (2-3 mins), and risk of hypotension.

10. Paralyze with succinylcholine 1.5mg/kg (see contraindications / considerations above)

11. Maintain C-spine immobilization if indicated, can take off collar and manually hold. Ensure NC on and at 10-15L for passive oxygenation for to intubation attempt.

12. Visualize cords via direct or video laryngoscopy. Intubate trachea with ETT directly, or place bougie tube introducer if unable to obtain adequate visualization

13. Confirm tube placement via auscultation of lungs and epigastrium, and presence of end-tidal CO2

14. Secure tube, noting depth of insertion.

15. Use Zemuron only if needed (ie. asynchronous respirations on the ventilator with adequate sedation ensured, combative patient who also is ensured given adequate sedation, or with consultation with Medical control. Zemuron (Rocuronium) 1.0 mg/kg IV for continued paralysis (onset approx. 3 minutes, duration 15-85 minutes). Avoid using if possible with prior seizure activity or risk of seizures. Before re-dosing Zemuron, adequate dosing must be ensured. If unable to use sedation due to BP consider starting low dose Fentanyl infusion.

16. Consider immobilizing the head/neck to reduce dislodgement risk. Do not use a c-collar except in case of trauma. Maintain neutral positioning with towels or blankets.

17. Ensure adequate sedation and pain medication administered. Start IV Versed and/or

Fentanyl infusions if flight time > 20 min. If BP is low, try Fentanyl infusion at low dose and then add Versed infusion at low doses as tolerated. Titrate up as able for effect.

Complications:

1. Cardiac dysrhythmias
2. Hyperkalemia
3. Fasciculations from paralysis
4. Vomiting and/or aspiration
5. Esophageal intubation
6. Prolonged paralysis, malignant hyperthermia
7. Oral trauma

References:

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5. UptoDate. Sedation or induction agents for rapid sequence intubation in adults. September 2012. David Caro, Ron Walls, Jonathan Grayzel

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