AirLink Critical Care Transport

Needle Cricothyroidotomy

Objective:

This procedure is used to provide emergent airway access if a safer, less invasive airway (oral or nasotracheal intubation) cannot be established or is contraindicated. It is the procedure of choice for a child 12 or younger.

Indications:

Foreign-body obstruction; facial and laryngeal trauma; inhalation, thermal, or caustic injury to the upper airway; angioneurotic edema; upper airway bleeding; epiglottis and severe croup.

Contraindications:

Absolute

Transection of the trachea.

Relative

Neck mass, swelling or cellulitis, hematoma, coagulopathy, fractured larynx.

Procedure:

Assemble equipment. 14 ga or 16 ga angiocath, 3 cc syringe, 2.5-3.0 ETT adapter, oxygen, BVM and trans-tracheal jet ventilation.

Place the patient in a supine position with support under the shoulders and mild hyperextension of the neck unless C-Spine injury is suspected.

Palpate the neck in the midline and locate the slight depression just below the notch of the thyroid cartilage. This is the position of the cricothyroid membrane.

Prepare the area with antiseptic solution.

Stabilize the airway between thumb and forefingers.

Using a scalpel, make a 0.5- 1 cm incision through the skin.

Insert the needle with catheter into the cricothyroid membrane at angle toward the pts feet.

When the needle is through the membrane stop and aspirate for air to ensure tracheal entry.

Advance the catheter over the needle and then remove the needle.

Attach the 2.5-3.0 ETT adapter to the hub of the catheter and begin ventilations with the BVM or trans-tracheal jet ventilator using 100% O2.

Secure the cannula with tape after confirming correct placement by auscultation for breath sounds, chest rise, ETCO2, and SpO2 . Observe for kinking of cannula.

Consider sedation with Versed as with RSI if not already given.

Pearls:

1. Trans-tracheal jet ventilation: Optimal ventilation may be achieved by delivering at a ratio of 1:4. (Allows for passive exhalation.)
2. If catheter becomes occluded then irrigate with 2-3 mls of sterile NS.

References:

1. Emergency Medicine. A Comprehensive Study Guide. Sixth Edition. American College of Physicians. Tintinalli et. al. 2010
2. Essential Emergency Procedures. Kaushai Shah, MD et. al. Lippincott William and Wilkins, 2008.
3. Current Diagnosis and Treatment Emergency Medicine. Sixth Edition. Stone and Humphries. McGraw Hill, 2008.

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