ENDOTRACHEAL INTUBATION

INDICATIONS: Includes Medical and Trauma Patients

- Apneic adult/adolescent (or estimated weight greater than 36 kg) without gag reflex.
- Respiratory arrest (adult/adolescent).
- Respiratory depression with an absent gag reflex (adult/adolescent).
- Unresponsive with respiratory depression (adult/adolescent).

CONTRAINDICATIONS:

- Obvious signs of death.
- Do-Not-Resuscitate.
- Known narcotic OD responsive to naloxone.

COMMENTS:

- Intubation may be attempted a maximum of three times.
- The patient should be ventilated between each attempt.
- Each attempt may take no longer than 30 seconds.
- Use $ETCO_2$ to confirm placement and for continued monitoring.

EQUIPMENT:

- Laryngoscope with adult size straight and curved metal blades (sizes #3 & #4). Endotracheal (ET) tubes with 10 mL cuff and 15 mm adaptor (sizes 6.5 to 8.0). 10 mL syringe.
- Stylet.
- Lubricant (water soluble). Flexible Intubation Guide. ET tube holder.
- Magill forceps.
- Approved suction device.
- Tonsil tip suction catheter & French suction catheters (#14 & #16). Sterile water or saline.
- Oxygen.
- Bag-valve mask or 40 L/min resuscitator - optional.
- $ETCO_2$ device

PREPARATION OF EQUIPMENT:

- Assemble all equipment.
- Inflate the cuff on the ET tube with 10 mL of air to test for leaks. Deflate cuff. Lubricate the ET tube.
- Insert the stylet into the ET tube.
  - The distal end of the stylet must be recessed at least 1 cm from the end of the ET tube. Bend the tube into a gentle curve.
- Have Flexible Intubation Guide available. Test the laryngoscope light.

ENDOTRACHEAL INTUBATION

PREPARATION OF PATIENT:

- Remove or suction any foreign materials from patient's mouth.
- Ventilate the patient with 100% oxygen for a minimum of 60 seconds.
- Position the patient in the "sniffing" position with the neck flexed and the head extended.
- Traumatic arrest.
  - No apparent **C-spine** injuries: position the patient in the "sniffing" position with the neck flexed and the head extended.
  - Suspected **C-spine injury:** an assistant will provide in-line stabilization in the neutral position.

PROCEDURE:

- Suction the patient's mouth until clear.
- Visualize the vocal cords, using appropriate technique for selected laryngoscope blade.
- Repeat suction as necessary; remove foreign bodies with Magill forceps.
- Maintain visualization of the vocal cords and insert the tube into the trachea until the cuff is situated just below the vocal cords.
  - Optimal External Laryngeal manipulation (OELM) may assist with visualization of the cords.
- For potential difficult intubations in which the lower area of the glottic opening can be identified, consider use of the Flexible Intubation Guide to aid in placing the ET tube.
- Remove the laryngoscope and stylet.
- Hold the tube in the correct position (approximately 21 cm mark at the upper teeth) by grasping it firmly in one hand. The tube is to be secured in this position.
- Inflate the cuff with 10 ml air or until test balloon connected to cuff is firm.

VENTILATE THE PATIENT:

- Ventilate the patient with 100% 02 by means of a bag-valve breathing device or 40 L/min resuscitator.
- Observe for bilateral rise and fall of the chest.
- Auscultate the epigastric area for absence of abdominal sounds, and the lungs bilaterally for breath sounds.
- Confirm placement with EtCO2

SECURE AIRWAY:

- Insert an oropharyngeal airway or bite block if required.
- Secure the tube in place at the appropriate level (about the 22 cm mark at the teeth) by use of an ET
- tube holder. Consider C-collar or other means to immobilize head to minimize movement.
- Reassess the tube position frequently during the call, each time the patient is moved or the tube is manipulated.
  - Observe continuously for bilateral rise and fall of the chest.
  - Auscultate for ventilation sounds over the lungs bilaterally and over the stomach.
  - Check the centimeter marking at the level of the incisors and compare with initial marking.
  - Monitor airway placement with ETCO2 device.

DOCUMENTATION:

Documentation shall include:

- Size of ET tube.
- Certification # of medic inserting tube.
- Time of insertion.

- Number of attempts required.
- Depth tube inserted (cm mark at teeth).
- Tube secured using ET tube holder.
- Use of collar or other means to immobilize head to minimize movement.
- Presence of bilateral breath sounds and absence of abdominal sounds.
- ETCO2 reading.
- Reassessment of bilateral breath sounds, absence of abdominal sounds, and tube insertion depth each time patient is moved.
- Any procedural problems or complications.

EXTUBATION:

Indications:

– Failure to ventilate
– Epigastric air sounds
– Absent bilateral breath sounds
– Suspected esophageal intubation
– Patient awakens
– Equipment malfunction (such as cuff leak)

Procedure:

- Suction oropharynx.
- Oxygenate the patient.
- Turn the patient's head or log roll entire body to the side.
- Be prepared to suction; anticipate emesis.
- Deflate the cuff while suctioning through ET tube.
- Withdraw the tube on exhalation.
- Monitor patient's respiratory status and intervene as necessary.
- Provide supplemental oxygen.

PROBLEM SOLVING:

- **Mainstem Bronchus Intubation:**
  - Breath sounds decreased or absent on the one side (usually left).
    - Withdraw the tube 1 cm.
    - Auscultate for bilateral breath sounds.
    - Repeat until breath sounds are equal bilaterally or until the 22 cm marking on the tube is at the level of the incisors.
    - Secure the tube.

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