Airway Management

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Key points

- Rapid Sequence Intubation
- Recognizing difficult airway
- Managing difficult airway

Rapid Sequence Intubation

- Definition:
- "Virtually simultaneous administration of a potent sedative agent and a neuromuscular blocking agent to induce unconsciousness and motor paralysis for tracheal intubation"

Seven Steps of RSI

- Prepare – 5 minutes
- Preoxygenate - 5 minutes
- Pretreat patient– Lidocaine, Fentanyl
- Use sedative/paralytic – Rapid push for RSI
- Position patient
- Place the tube- Intubate
- Post-intubation management – Confirm the tube


Premedicate

Medications prior to intubation
- Lidocaine—Increased ICP, asthma
- Opiate—Decreases sympathetic tone (CHF, dissection, ICH, ACS)
- Atropine—Optional use in children < 1 year of age
- Defasiculating agent not recommended


Sedative

- Make sure patient is sedated before paralysis
- Etomidate – Excellent hemodynamic side effect profile
- Consider Ketamine in Asthma due to bronchodilatory effects
- Thiopental is cerebro-protective
- Midazolam can cause hypotension
- Propofol decreases rise in ICP, but decreases cerebral perfusion pressure
Paralytic agents

- Sch has the best onset/offset time
- Drug of choice in RSI
- CI: Malignant Hyperthermia, Neuromuscular diseases and denervating injuries
- Use Rocuronium if Sch is contra-indicated
- Rocuronium has a long half life and hence less favorable than Sch

Protection/Positioning

- Sniffing position
- Sellick’s maneuver is optional since it does not improve view or compress esophagus
- BURP maneuver Backward Upward Rightward pressure on Thyroid cartilage to improve view

Key points

- Preoxygenate and position the patient before intubation
- Always sedate your patient before paralysis
- Consider Rocuronium only if Sch is contra-indicated
Difficult Airway

- Crash Airway:
  - Near dead patient
  - Intubate without medications
- Difficult Airway:
  - Difficulty with BMV, Laryngoscopy, Intubation or surgical airway
- Failed Airway:
  - Unable to intubate after 3 attempts by experienced operator
  - Able to BMV, not able to keep Sao2 > 90


Universal Emergency Airway Algorithm

- Crash Airway
- Difficult Airway
- RSI

Recognizing Difficult BMV

- Difficult BMV
- Placing mask
  - Anatomy
  - Loss of tone
  - Loss of teeth
- Unable to bag
  - Obstruction
  - Stiffness

Recognizing difficult view

- Difficult Intubation
- Facial abnormalities
- Upper airway obstruction
- Neck mobility
- In awake patient, assess mouth opening
- Use their fingers to measure mouth opening, mandibular and laryngeal distance

Recognizing difficult Cricothyrotomy

- Loss of anatomy due to
- Swelling
- Trauma
- Other deformities

Difficult Airway Algorithm

If you can oxygenate
1) Try RSI
2) Sedate and take an awake look
3) Use adjunctive airways

If you cannot oxygenate or if other measures fail
1) Prepare for surgical airway
Pearls

- Identify difficult airway and have a double set up ready
- Can’t intubate, Can ventilate
  - Use adjunctive airways
  - Prepare for surgical cricothyrotomy
- Can’t intubate, Can’t ventilate
  - Try rescue devices
  - Prepare for immediate cricothyrotomy

Airway Devices

Supraglottic Devices/Definitive Devices
LMA
Combitube
Bougie
Glidescope
Surgical Airway

LMA

- Keep neck in neutral or flexion
- Deflate cuff, lubricate, finger at cuff-tube junction, against hard palate
- Do not use cricoid pressure during insertion
- LMA should be in midline
- Maintain the LMA curvature
- Sizes: 3 – Small adult, 4 – Average adult, 5 – >70kg adult
Placement of LMA

Combitube

- Jaw thrust in neutral position
- Insert along midline
- Alveolar ridge between black bands
- Pharyngeal balloon = 100ml
- Distal balloon = 10ml
Gum Elastic Bougie

- Is flexible with J angle at tip, 60cm long and reusable
- Contra-indicated under 14 years
- Can be used when tip of epiglottis or arytenoids (AC) are visualized
- Pass the bougie in midline anterior to AC or behind the epiglottis
- Feel the clicks of tracheal ring
References

Walls RM et al. Manual of Emergency Airway Management