AORN eGUIDELINES+

Emergencies at a Glance: Airway Management

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Preoperative Airway Assessment

Airway assessments are typically performed by an anesthesia professional. However, being familiar with these concepts will help perioperative nurses to identify a patient that may have a challenging airway and assist them to be better prepared to assist in management.

- Dentition
  - Assess the patient's mouth for any removable or implanted dentition (dentures, caps, crowns, bridges, retainers), loose teeth, missing or broken teeth, or large/prominent teeth.

- Mallampati Score
  - This assessment allows you to visualize the structures at the back of the mouth to look at the tongue size, the size of the oral cavity, and the mobility of the jaw. Assess the posterior pharynx by sitting the patient upright and asking them to open their mouth and stick out their tongue as far as they can.
- Neck mobility
  - Assess the patients range of motion in their neck and ask about any challenges with movement or positioning. This can also be helpful information associated with basic surgical positioning.

Basic Airway Maneuvers

If a patient is unable to protect their airway, nurses may be asked to assist with a head tilt-chin lift or jaw thrust to open the airway manually. If the patient is not able to breathe on their own, they will need to be ventilated using a BVM (bag-valve-mask) or the flow-dependent anesthesia bag.

To ventilate a patient, bring the face into the mask by using the 1-rescuer technique or the 2-rescuer technique:

- 1-rescuer technique ie, the “EC” technique
  - Use the thumb and first finger of the left hand and encircle the mask (forming a “C”) while

using the third, fourth, and fifth fingers (forming an "E") to lift the jaw into the mask
    - Use the dominant hand to deliver breaths
- 2-rescuer technique
    - One rescuer utilizes the "EC" technique on both sides of the patients face and mask to obtain an effective seal between the mask and the face
    - The second rescuer delivers breaths

If there is no visible chest rise when attempting to ventilate, reposition the airway to improve the seal between the mask and patient's face, move to a 2-rescuer technique if performing the 1-rescuer technique, or consider an adjunct airway.

- Oropharyngeal airway (OPA): rigid device that fits over the tongue to keep the soft airway structures from causing an obstruction. It can cause gagging or coughing in patients with an intact gag reflex or cough.
    - Nasopharyngeal airway (NPA): soft, malleable device inserted in the nare to provide a pathway for airflow from the nostrils to the pharynx. Be cautious when using in a patient with facial trauma.

If the previously listed methods fail, be prepared to assist the anesthesia professional to proceed to an advanced airway such as a supraglottic (SGA) placement or endotracheal intubation.

Supraglottic Airways

Supraglottic airways (SGA) are a group of airway devices that can be inserted blindly into the pharynx, creating a seal around the trachea to promote airflow into the lungs. SGA's allow for ventilation, oxygenation, and administration of anesthetic gases. They do not enter the vocal cords, therefore SGA's are not definitive airways.

They come in a variety of sizes; sizes are based off the patient's height or ideal body weight. Follow any state laws and facility's policies and procedures on SGA insertion.

Laryngoscopy

Direct or video laryngoscopy involves placing an endotracheal tube (ETT) through the vocal cords into the main bronchi above the level of the carina. This is a commonly seen skill used by anesthesia professionals in perioperative areas.

- Equipment needed
  - Induction medications and paralytics
  - Endotracheal tube of appropriate size
  - 10 mL syringe to inflate pilot balloon after placement
  - Stylet or bougie dilator to assist in placement
  - Laryngoscope blade of appropriate size and handle with working light or video

laryngoscopy set-up with appropriately sized blade and functional camera
    - Suction (set up and turned on high)
    - Tube securement device
    - Functional EtCO2 waveform capnography set up on monitor
    - BVM, ventilator, or anesthesia machine for continued ventilations after intubation
- Upon successful placement of an ETT, you should have the following:
    - Bilateral chest rise and bilateral breath sounds
    - End-tidal carbon dioxide ($EtCO_2$) waveform with appropriate EtCO2 readings (normal $EtCO_2$ 35 to 45 mm Hg)
    - Misting in the endotracheal tube

If the above findings indicating a successful ETT placement are absent, the ETT is likely in the esophagus and must be immediately reassessed and/or removed for another attempt. If a failed airway occurs, consider changing patient position, equipment, technique, or airway providers. If multiple failed attempts (or one with an obvious deterrent such as a tumor or anatomical anomaly preventing the ability to pass the ETT through the vocal cords), reassess if you can ventilate with a BVM and airway adjunct. If clinicians can successfully ventilate with a BVM and adjunct or via a SGA, continue to do so until more resources arrive. If clinicians are NOT able to ventilate with a BVM and adjunct or via a SGA, it is considered an

acute emergency. In a "can't intubate/can't ventilate" situation, the team needs to prepare for a surgical airway.

Surgical Airway

There are two types of surgical airways: an emergent cricothyroidotomy and a nonemergent tracheotomy. A nonemergent tracheotomy is typically a planned procedure in patient's requiring long-term ventilatory support.

An emergent cricothyroidotomy is performed when unable to intubate or ventilate despite all techniques being attempted. The licensed practitioner makes an incision into the neck through the cricothyroid membrane. Depending on availability of equipment, either a traditional ETT or a tracheostomy tube can be inserted into the passage to provide a patent tract for ventilation. Nurses should be familiar with emergency equipment and difficult airway cart in the event of an airway emergency.

References

1. Airway management. National Library of Medicine. https://www.ncbi.nlm.nih.gov/books/NBK470403/ Accessed June 24th, 2024.