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Airway Management

Standard: Airway Management, Respiration, and Artificial Ventilation (Airway Management)

Competency: Applies knowledge (fundamental depth, foundational breadth) of general anatomy and physiology to patient assessment and management in order to ensure a patent airway, adequate mechanical ventilation, and respiration for patients of all ages.

OBJECTIVES

After reading this chapter you should be able to:

- 8.1 Define key terms introduced in this chapter.
- 8.2 Describe the anatomy and physiology of the upper and lower airways.
- 8.3 Given a diagram or model, identify the structures of the upper and lower airways.
- 8.4 Describe common pathophysiologic problems leading to airway obstruction.
- 8.5 Demonstrate assessment of the airway in a variety of patient scenarios.
- 8.6 Associate abnormal airway sounds with likely pathophysiologic causes.
- 8.7 Identify patients who have an open airway but who are at risk for airway compromise.
- 8.8 Recognize patients who have an inadequate airway.
- 8.9 Demonstrate manually opening the airway in pediatric and adult medical and trauma patients.
 - a. Head-tilt, chin-lift maneuver
 - b. Jaw-thrust maneuver
- 8.10 Describe the indications, contraindications, use, and potential complications of airway adjuncts, including:
 - a. Oropharyngeal airway
 - b. Nasopharyngeal airway

- 8.11** Recognize the indications for suctioning of the mouth and oropharynx.
- 8.12** Describe risks and limitations associated with suctioning the mouth and oropharynx.
- 8.13** Demonstrate the following airway management skills:
- Inserting an oropharyngeal airway
 - Inserting a nasopharyngeal airway
 - Suctioning the mouth and oropharynx
- 8.14** Describe modifications in airway management for pediatric patients, patients with facial trauma, and patients with airway obstruction.

MATCH TERMINOLOGY/ DEFINITIONS

- | | |
|---|--|
| <p>A. A method for (means of) correcting blockage of the airway by moving the jaw forward without tilting the head or neck; this method is indicated when trauma, or injury, is suspected to open the airway without causing further injury to the spinal cord in the neck</p> | <p>_____ 1. Airway</p> |
| <p>B. A curved device inserted through the patient's mouth into the pharynx to help maintain an open airway</p> | <p>_____ 2. Patent airway</p> |
| <p>C. An airway that is open and clear and will remain open and clear, without interference to the passage of air into and out of the lungs</p> | <p>_____ 3. Head-tilt, chin-lift</p> |
| <p>D. Vomiting or retching that may result when something is placed in the back of the pharynx; this is tied to the swallow reflex</p> | <p>_____ 4. Jaw-thrust maneuver</p> |
| <p>E. The passageway by which air enters or leaves the body; the structures of the airway are the nose, mouth, pharynx, larynx, trachea, bronchi, bronchioles, and alveoli</p> | <p>_____ 5. Oropharyngeal airway</p> |
| <p>F. A method of correcting blockage of the airway by the tongue by tilting the head back and lifting the chin; this method is indicated when no trauma, or injury, is suspected.</p> | <p>_____ 6. Nasopharyngeal airway</p> |
| <p>G. Use of a vacuum device to remove blood, vomitus, and other secretions or foreign materials from the airway</p> | <p>_____ 7. Gag reflex</p> |
| <p>H. A flexible breathing tube inserted through the patient's nose into the pharynx to help maintain an open airway</p> | <p>_____ 8. Suctioning</p> |

MULTIPLE-CHOICE REVIEW

- _____ **1.** During respiration, the movement of air into and out of the lungs requires that:
- oxygen exits on the exhalation phase.
 - carbon dioxide enters on the inhalation phase.
 - air flow be unobstructed and move freely.
 - the mouth be open at all times that the patient is breathing.
- _____ **2.** When a patient inhales, air enters the throat, which is divided into the:
- nasopharynx.
 - oropharynx.
 - laryngopharynx.
 - all of these.

- _____ 3. The hypopharynx is also called the:
- A. nares.
 - B. laryngopharynx.
 - C. trachea.
 - D. glottis.
- _____ 4. The large leaf-like structure that protects the opening to the trachea is called the:
- A. oropharynx.
 - B. xiphoid process.
 - C. epiglottis.
 - D. cricoid cartilage.
- _____ 5. When we say that a patient is experiencing lower airway obstruction, it is likely that:
- A. he or she is choking on a foreign object.
 - B. his or her bronchial passages or alveoli are congested.
 - C. his or her tongue is swollen.
 - D. none of these.
- _____ 6. Signs of a potentially inadequate airway include all of the following *except*:
- A. absent air movement.
 - B. air that can be felt at the nose or mouth on expiration.
 - C. unusual hoarse or raspy sound quality to the voice.
 - D. abnormal noises such as wheezing, crowing, or stridor.
- _____ 7. An inadequate airway in a child is defined as:
- A. less than 15 breaths per minute.
 - B. retractions above the clavicles and between and below the ribs.
 - C. breathing that is primarily from the nose in infants.
 - D. none of these.
- _____ 8. When you question an elderly woman with a respiratory complaint, she speaks in short, two- or three-word sentences. Is this significant?
- A. No, she is probably always like that.
 - B. Yes, she must have a complete airway obstruction.
 - C. No, elderly people always talk slowly.
 - D. Yes, she is probably very short of breath.
- _____ 9. Your patient was the driver of a car that stopped suddenly when she hit a pole. She was not wearing her seatbelt and has a bruise on her neck. When you question her, she speaks very softly and seems to have a raspy voice. Is this significant or just a sign of nervousness about the collision?
- A. No, many patients get quiet after a motor vehicle crash.
 - B. Yes, if she were nervous, she would be more excited.
 - C. No, but the bruise could mean that she has significant bleeding.
 - D. Yes, low volume and raspy tone could be due to airway swelling from neck or laryngeal trauma.
- _____ 10. One indication that a child is experiencing inadequate breathing is that she:
- A. has a headache.
 - B. complains of nausea.
 - C. has nasal flaring when breathing.
 - D. is dizzy when standing.
- _____ 11. The very first step to aid a patient who is not breathing is to:
- A. clear the mouth.
 - B. administer oxygen.
 - C. apply positive ventilation.
 - D. open the airway.
- _____ 12. What is the importance of mechanism of injury (MOI) to airway care?
- A. An injured patient will need more oxygen.
 - B. The procedure for opening the patient's airway is different in trauma.
 - C. Patients without a mechanism of injury will have an open airway.
 - D. An injury can make airway care easier to manage than a medical emergency.

- _____ 13. To open the airway of a patient with a suspected head, neck, or spine injury, the EMT should use a _____ maneuver.
- A. jaw-thrust
B. head-tilt, chin-lift
C. head-tilt, neck-lift
D. modified chin-thrust
- _____ 14. When performing the head-tilt, chin-lift maneuver, the EMT should:
- A. not allow the patient's mouth to close.
B. position himself at the top of the patient's head.
C. tilt the head by applying pressure to the patient's chin.
D. use fingertips to lift the neck.
- _____ 15. When performing the jaw-thrust maneuver, the EMT should do each one of the following *except*:
- A. kneel at the top of the patient's head.
B. stabilize the patient's head with the forearms.
C. use the index fingers to push the angles of the patient's lower jaw forward.
D. tilt the head by applying gentle pressure to the patient's forehead.
- _____ 16. The main purpose of the jaw-thrust maneuver is to:
- A. open the mouth with only one hand.
B. open the airway without moving the head or neck.
C. create an airway for the medical patient.
D. create an airway when it is not possible to jut the jaw.
- _____ 17. An oral or nasal airway should be:
- A. cleaned for reuse after the call.
B. inserted in all critically injured patients.
C. used to keep the tongue from blocking the airway.
D. used in order to prevent the need for suctioning.
- _____ 18. If something is placed in the patient's throat, the gag reflex causes the patient to:
- A. take deep breaths.
B. pass out.
C. vomit or retch.
D. all of these.
- _____ 19. An oropharyngeal airway of proper size extends from the:
- A. corner of the patient's mouth to the tip of the earlobe.
B. lips to the larynx.
C. nose to the angle of the jaw.
D. none of these.
- _____ 20. An oral airway should be inserted:
- A. upside down, with the tip toward the roof of the mouth, then flipped 180 degrees over the tongue.
B. right side up, using a tongue depressor to press the tongue down and forward to keep it from obstructing the airway.
C. either of these.
D. neither of these.
- _____ 21. A nasopharyngeal airway should be:
- A. inserted with the bevel on the lateral side of the nostril.
B. measured from the patient's nostril to the earlobe.
C. inserted in the left nostril when possible.
D. turned 180 degrees with the tip facing the roof of the mouth.
- _____ 22. When inserting a nasopharyngeal airway, lubricate the outside of the tube with:
- A. petroleum jelly.
B. an oil-based lubricant.
C. a silicone-based gel.
D. a water-based lubricant.
- _____ 23. The purposes of suctioning may include removal of:
- A. teeth and large pieces of solid material.
B. excess oxygen from the patient.
C. blood, vomitus, and other secretions.
D. all of these.

C. _____

D. _____

E. _____

STREET SCENES DISCUSSION

Review the Street Scene on page 195 of your textbook. Then answer the following questions.

1. If the patient had no gag reflex, what airway adjunct would you consider using? How would you insert it?
2. If the patient vomits during ventilation with a bag mask device, what should you do?
3. If the patient's pulse had not rapidly increased, should you have called for an ALS intercept? Why or why not?

CASE STUDY

This case study is designed to help you apply the concepts presented in this textbook. The case study describes a situation you might encounter in the field and is followed by questions about the situation. The questions require you to explain and apply key concepts from your reading.

▶ THE RAPIDLY CHANGING AIRWAY

Your BLS unit and the police are dispatched to the scene of a call for a woman who is having difficulty breathing. The call was made by a family member who came home and found his 45-year-old mother wheezing and struggling. The police arrive before you and advise that the scene is secure (safe) and that you should respond directly to the scene of a private home in a suburban community 2 minutes from your station. As you enter the house, you can hear a woman wheezing and the sound gets louder as you go up the stairs. She is in the rear upper bedroom. After donning your protective gloves, mask, and goggles, you begin to question the patient as your partner obtains a set of baseline vital signs. The patient talks in short, choppy sentences, and it is clear she is having a very severe asthma attack.

1. Does this patient have an upper or lower airway obstruction?

2. What is the significance of the patient being able to speak only in short choppy sentences?

3. If this patient were to become unconscious while you are providing care, what type of airway would be used first?

4. Once the patient is unconscious and placed on your stretcher, how would you manually open the airway?

5. You are assisting the patient, who is now unconscious on your stretcher. ALS has been called for, and you are preparing to carry her out the front door to the ambulance. The patient starts to make a snoring noise. What is that, and what should you do?

6. After dealing with the airway noise, you now notice that there is a gurgling sound. What causes this sound and how do you take care of it?

EMT SKILLS PERFORMANCE CHECKLISTS

► POSITIONING THE ADULT PATIENT FOR BASIC LIFE SUPPORT (P. 181)

- Take Standard Precautions.
- Straighten the patient's legs and position the arm closest to you above his head.
- Cradle the patient's head and neck. Grasp under the distant armpit.
- Move the patient as a unit onto his side.
- Move the patient onto his back and reposition the extended arm.

NOTE: This maneuver is used to initiate airway evaluation, artificial ventilation, or CPR when the EMT must act alone. When trauma is suspected, the four-rescuer log roll is the preferred technique.