FISDAP EMT Airway Practice Test (Sample)

Study Guide

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Questions

1. **Which type of breathing pattern is frequently associated with increased intracranial pressure?**
   - **A. Cheyne-Stokes**
   - **B. Kussmaul's**
   - **C. Hyperventilation**
   - **D. Agonal**

2. **What is the primary function of oxygen administered through a nasal cannula?**
   - **A. To achieve total ventilatory support**
   - **B. To supplement oxygen for patients who are breathing adequately**
   - **C. To provide medication delivery during transport**
   - **D. To assist patients with facial trauma**

3. **What is the minimum oxygen flow rate when using a nasal cannula?**
   - **A. 1 liter per minute**
   - **B. 2 liters per minute**
   - **C. 3 liters per minute**
   - **D. 4 liters per minute**

4. **What is the name of the passageway shared by the digestive tract and the respiratory systems for air and food?**
   - **A. Pharynx**
   - **B. Oropharynx**
   - **C. Larynx**
   - **D. Nasal Cavity**

5. **What is a major indication for Advanced Airway Management like endotracheal intubation?**
   - **A. Presence of a cough reflex**
   - **B. Inability to maintain a patent airway or inadequate ventilation**
   - **C. Patient preference for intubation**
   - **D. Lack of oxygen saturation monitoring**

6. What is an appropriate treatment for a patient exhibiting signs of pneumonia?

- **A. Administer bronchodilators**
- **B. Apply high flow oxygen**
- **C. Prepare for intubation**
- **D. Encourage fluid intake**

7. A patient presents with sudden shortness of breath, crackles, hypertension, and jugular distension. What should you suspect?

- **A. Chronic bronchitis**
- **B. Acute pulmonary edema**
- **C. Pneumonia**
- **D. Pneumothorax**

8. Which treatment strategy is best for a patient exhibiting increased shortness of breath and an SPO2 level below normal?

- **A. Administering steroids**
- **B. Providing supplemental oxygen**
- **C. Encouraging coughing**
- **D. Applying heat packs**

9. What is the formula for calculating the proper oxygen flow for a non-rebreather mask?

- **A. The oxygen flow should be set at 6-10 liters per minute**
- **B. The oxygen flow should be set at 10-15 liters per minute**
- **C. The oxygen flow should be set at 5-7 liters per minute**
- **D. The oxygen flow should be set at 8-12 liters per minute**

10. What complication should be monitored for after airway interventions?

- **A. Hyperventilation or hypoventilation risks**
- **B. Increased heart rate and blood pressure**
- **C. Development of a headache**
- **D. A decrease in body temperature**

Answers

1. A
2. B
3. A
4. A
5. B
6. B
7. B
8. B
9. B
10. A

Explanations

1. Which type of breathing pattern is frequently associated with increased intracranial pressure?

A. Cheyne-Stokes

B. Kussmaul's

C. Hyperventilation

D. Agonal

Cheyne-Stokes breathing is characterized by a cyclical pattern of gradually increasing depth and then decreasing depth of breaths, followed by a period of apnea. This pattern is often seen in patients with neurological issues, particularly those experiencing increased intracranial pressure (ICP). The relationship between Cheyne-Stokes respiration and increased ICP arises due to the changes in brain activity and regulation of breathing that occur when there is pressure on the brain, particularly affecting the brainstem where the respiratory centers are located. In conditions leading to increased ICP, such as traumatic brain injury or brain tumors, this breathing pattern can emerge due to the brain's response to metabolic demands and altered carbon dioxide levels. Cheyne-Stokes is an important sign that can alert healthcare providers to the severity of the patient's neurological status, prompting further assessment and intervention. The other breathing patterns mentioned, while having their own clinical significance, do not have this specific association with increased intracranial pressure. Kussmaul's breathing, for example, indicates metabolic acidosis and is not directly linked to increased ICP. Hyperventilation might be seen in various conditions, including anxiety or respiratory distress, and agonal breathing typically indicates an impending respiratory failure rather than a compensatory mechanism related to ICP.

2. What is the primary function of oxygen administered through a nasal cannula?

A. To achieve total ventilatory support

B. To supplement oxygen for patients who are breathing adequately

C. To provide medication delivery during transport

D. To assist patients with facial trauma

The primary function of oxygen administered through a nasal cannula is to supplement oxygen for patients who are breathing adequately. A nasal cannula is a common method used to deliver supplemental oxygen to patients who can still maintain their own respiratory effort but may not be receiving enough oxygen to meet their body's needs. This device is particularly beneficial for patients with respiratory conditions, where ensuring adequate oxygen saturation is crucial for their overall health and recovery. Using a nasal cannula is ideal for patients who are awake and have a patent airway, allowing them to breathe normally while still receiving the additional oxygen required. This method is less invasive compared to other forms of oxygen delivery, such as a non-rebreather mask, and it allows patients to communicate and eat if needed. While other options mention concepts like total ventilatory support, medication delivery, and assistance with facial trauma, they do not align with the primary purpose of a nasal cannula. The device is not intended for total ventilatory support since it does not replace the patient's breathing effort. It is not designed for delivering medications during transport nor is it uniquely tailored for patients with facial trauma when more specialized equipment may be necessary. Thus, the correct focus is on its role in supplemental oxygen for those who are breathing adequately.

3. What is the minimum oxygen flow rate when using a nasal cannula?

A. 1 liter per minute

B. 2 liters per minute

C. 3 liters per minute

D. 4 liters per minute

The minimum oxygen flow rate when using a nasal cannula is commonly set at 1 liter per minute. At this flow rate, the device can deliver a low concentration of oxygen to the patient, which is suitable for those who require supplemental oxygen but do not need a high concentration. Using a nasal cannula at 1 liter per minute can provide approximately 24% oxygen concentration, which may be adequate for patients with mild respiratory distress or those who need a moderate level of supplemental oxygen. As the flow rate increases, the percentage of oxygen delivered also increases, but starting at 1 liter per minute ensures that the patient receives some level of oxygen without overwhelming their respiratory system. As for the other values, while higher flow rates are often used, they represent a progression above the minimum requirement. For instance, using flow rates of 2, 3, or 4 liters per minute can enhance oxygen delivery but are not considered the minimum necessary for effective use of a nasal cannula.

4. What is the name of the passageway shared by the digestive tract and the respiratory systems for air and food?

A. Pharynx

B. Oropharynx

C. Larynx

D. Nasal Cavity

The passageway that is shared by both the digestive tract and the respiratory systems for air and food is called the pharynx. The pharynx serves as a critical junction where air from the nasal cavity and food from the mouth converge before being directed to their respective pathways—air moving into the larynx and food into the esophagus. This anatomical structure is essential for the process of swallowing and breathing, highlighting its dual role in maintaining both airway integrity and digestive function. While the oropharynx, larynx, and nasal cavity are related structures, they each have specific functions and limitations. The oropharynx is specifically a part of the pharynx located behind the oral cavity, dealing primarily with the passage of air and food but not encompassing the whole shared passageway. The larynx, on the other hand, is primarily involved in protecting the airway and producing sound, acting as a passageway for air only. Lastly, the nasal cavity primarily serves as an airway passage for breathing, with no role in the digestive process. This distinction clarifies why pharynx is the correct answer, as it encompasses the entire shared functioning of both the respiratory and digestive systems.

5. What is a major indication for Advanced Airway Management like endotracheal intubation?

A. Presence of a cough reflex

B. Inability to maintain a patent airway or inadequate ventilation

C. Patient preference for intubation

D. Lack of oxygen saturation monitoring

Advanced airway management, such as endotracheal intubation, is indicated primarily when there is an inability to maintain a patent airway or when the patient is experiencing inadequate ventilation. This situation often arises in cases where the patient's level of consciousness is impaired, which could be due to trauma, respiratory failure, or other medical conditions that compromise the airway. In these scenarios, the ability to protect the airway becomes critical. If the airway is obstructed or if the patient cannot effectively ventilate due to muscle weakness or decreased responsiveness, endotracheal intubation ensures that the airway remains open and facilitates adequate oxygenation and ventilation. The procedure involves placing a tube directly into the trachea, thereby bypassing potential obstructions, which is essential for life support in emergencies. While other options, such as the presence of a cough reflex or a patient's preference for intubation, may be relevant in certain contexts, they do not directly indicate the need for advanced airway management. Oxygen saturation monitoring can provide valuable information but is not a direct indication for intubation by itself. Therefore, the inability to maintain an open airway or ensure proper ventilation is the critical reason that supports the need for advanced airway interventions like intubation.

6. What is an appropriate treatment for a patient exhibiting signs of pneumonia?

A. Administer bronchodilators

B. Apply high flow oxygen

C. Prepare for intubation

D. Encourage fluid intake

In cases of pneumonia, it is common for patients to experience difficulty breathing and decreased oxygenation due to fluid in the lungs and inflammation. Administering high flow oxygen can significantly enhance oxygen delivery to the patient, addressing hypoxia and supporting their respiratory function. This method ensures that the patient receives sufficient oxygen, which is crucial for their recovery and overall stability. While bronchodilators may be beneficial for certain respiratory conditions like asthma or COPD, they are not typically indicated for pneumonia unless there is a specific bronchospasm present. Intubation is generally reserved for severe respiratory failure or when the patient is unable to protect their airway, which would not be the initial approach for pneumonia. Encouraging fluid intake is often relevant for overall hydration and can help thin secretions, but it doesn't address the immediate need for oxygenation in a patient experiencing compromised respiratory function. Thus, applying high flow oxygen stands out as the appropriate treatment to manage the acute condition effectively.

7. A patient presents with sudden shortness of breath, crackles, hypertension, and jugular distension. What should you suspect?

A. Chronic bronchitis

B. Acute pulmonary edema

C. Pneumonia

D. Pneumothorax

The presentation of sudden shortness of breath, crackles, hypertension, and jugular distension strongly indicates acute pulmonary edema. In this condition, fluid accumulates in the alveoli of the lungs, leading to impaired gas exchange and the characteristic crackling sounds heard during auscultation. The rapid onset of shortness of breath is typical, particularly in cases related to heart failure, which often leads to pulmonary congestion. Jugular distension is indicative of increased central venous pressure, which is commonly associated with right-sided heart failure or fluid overload, both of which can contribute to acute pulmonary edema. Hypertension may also occur as a compensatory response. In contrast, chronic bronchitis would present differently, usually with a more gradual onset of symptoms and a productive cough due to mucus production. Pneumonia would often be associated with fever and other respiratory symptoms specific to infection, while pneumothorax would typically cause sudden and severe unilateral chest pain along with dyspnea, without the associated jugular distension or crackles indicative of fluid in the lungs.

8. Which treatment strategy is best for a patient exhibiting increased shortness of breath and an SPO2 level below normal?

A. Administering steroids

B. Providing supplemental oxygen

C. Encouraging coughing

D. Applying heat packs

Providing supplemental oxygen is the best treatment strategy for a patient exhibiting increased shortness of breath and a low oxygen saturation level (SPO2). When a patient experiences shortness of breath, it often indicates that they are not getting enough oxygen to meet their body's needs. Supplemental oxygen can help improve the oxygen levels in the blood, alleviate the patient's discomfort, and enhance overall respiratory function. In situations where a patient's SPO2 is below normal, administering oxygen is a critical and immediate intervention to ensure that vital organs receive adequate oxygen. This can be especially vital in emergencies such as exacerbations of chronic obstructive pulmonary disease (COPD), asthma attacks, or pulmonary edema, where oxygen delivery is compromised. Other options like administering steroids may be useful in certain inflammatory conditions affecting the airway but are not immediate solutions for correcting low SPO2 levels. Encouraging coughing might help remove secretions in some cases but is less effective for addressing hypoxia directly. Applying heat packs has no relevance in treating respiratory distress and is not beneficial for improving oxygenation. Thus, supplemental oxygen directly addresses the low oxygenization problem, making it the most appropriate and effective treatment in this scenario.

9. What is the formula for calculating the proper oxygen flow for a non-rebreather mask?

A. The oxygen flow should be set at 6-10 liters per minute

B. The oxygen flow should be set at 10-15 liters per minute

C. The oxygen flow should be set at 5-7 liters per minute

D. The oxygen flow should be set at 8-12 liters per minute

The proper oxygen flow for a non-rebreather mask is set at 10-15 liters per minute. This flow rate is necessary to ensure that the reservoir bag remains inflated, allowing for a high concentration of oxygen to be delivered to the patient. Non-rebreather masks are designed to deliver nearly 100% oxygen to patients who are in serious respiratory distress or have critical conditions requiring supplemental oxygen. When the flow rate is set within this range, it helps to create a suitable environment for the patient to receive sufficient oxygen while minimizing the risk of rebreathing expired gases. An adequate flow rate fills the mask's reservoir bag quickly, ensuring that the patient inhales supplemental oxygen with each breath, thereby maximizing the oxygen delivered to the lungs. Other flow rates outside the 10-15 liters per minute range might not provide enough oxygen flow to keep the bag inflated, thereby compromising the effectiveness of the non-rebreather mask and possibly leading to inadequate oxygenation for the patient.

10. What complication should be monitored for after airway interventions?

A. Hyperventilation or hypoventilation risks

B. Increased heart rate and blood pressure

C. Development of a headache

D. A decrease in body temperature

Monitoring for hyperventilation or hypoventilation risks after airway interventions is essential because both conditions can lead to significant physiological changes. Hyperventilation occurs when a patient breathes too rapidly or deeply, causing a decrease in carbon dioxide levels in the blood (hypocapnia). This can lead to symptoms like lightheadedness, tingling in the extremities, or even loss of consciousness. Hypoventilation, on the other hand, involves inadequate ventilation and can result in elevated carbon dioxide levels (hypercapnia), which may lead to respiratory acidosis and can compromise oxygenation. These risks are particularly important to monitor after interventions such as intubation or the use of bag-valve-mask devices, when the patient's breathing pattern may change significantly. Understanding and recognizing these complications can help in managing the patient's airway more effectively, ensuring that adequate ventilation is maintained and preventing further complications from arising.