Emergency Medical Technicians (EMT) National Registry Practice Exam (Sample)

Study Guide

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Questions

1. Chronic bronchitis is part of which syndrome?

A. Asthma

B. Chronic obstructive pulmonary disease (COPD)

C. Pneumonia

D. Interstitial lung disease

2. What is considered hypotensive for an adult based on systolic BP?

A. 80 mmHg

B. 90 mmHg

C. 100 mmHg

D. 110 mmHg

3. What is the term for a thrombus that breaks loose and moves with the bloodstream?

A. Aneurysm

B. Embolism

C. Stenosis

D. Thrombosis

4. Which of the following is a common side effect of activated charcoal?

A. Hypertension

B. Constipation

C. Bradycardia

D. Diarrhea

5. What occurs when pressure within the skull increases due to brain swelling?

A. Brain receives more oxygen

B. Decrease in blood flow to the brain

C. Increase in cerebrospinal fluid

D. Reduction of brain function

6. During what condition may a patient be at risk of developing an open fracture?

- **A. Improper CPR**
- **B. Splinting a closed fracture**
- **C. Transport on uneven surfaces**
- **D. Applying a restrictor band**

7. What is the primary action of albuterol?

- **A. Antihistamine**
- **B. Bronchodilator**
- **C. Corticosteroid**
- **D. Expectorant**

8. Which symptom may indicate that a patient is experiencing tachycardia after administration of albuterol?

- **A. Slow heartbeat**
- **B. Rapid heartbeat**
- **C. Shortness of breath**
- **D. Profuse sweating**

9. What is the pharmacological action of Atrovent?

- **A. Antihistamine**
- **B. Bronchodilator**
- **C. Corticosteroid**
- **D. Decongestant**

10. What is the blood sugar level defined as hypoglycemia?

- **A. Less than 40**
- **B. Less than 50**
- **C. Less than 60**
- **D. Less than 70**

Answers

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

Explanations

1. Chronic bronchitis is part of which syndrome?

A. Asthma

B. Chronic obstructive pulmonary disease (COPD)

C. Pneumonia

D. Interstitial lung disease

Chronic bronchitis is classified as part of chronic obstructive pulmonary disease (COPD), which is a group of lung diseases that cause breathing difficulties. COPD encompasses chronic bronchitis and emphysema, both of which involve persistent airflow limitation. In the case of chronic bronchitis, the primary issue is inflammation of the bronchial tubes, leading to increased mucus production and coughing. This condition often occurs in patients with a history of smoking or exposure to environmental pollutants, making it a significant component of the overall picture of COPD. The relationship to COPD is critical since the disease is characterized by chronic airflow obstruction, and chronic bronchitis specifically contributes to that obstruction through mucus build-up and narrowing of the airways. Understanding this classification is essential for appropriately diagnosing and managing patients with respiratory conditions.

2. What is considered hypotensive for an adult based on systolic BP?

A. 80 mmHg

B. 90 mmHg

C. 100 mmHg

D. 110 mmHg

Hypotension in adults is generally defined as a systolic blood pressure that falls below 90 mmHg. This level indicates that the blood pressure is insufficient for normal blood flow to organs, which can lead to inadequate perfusion and potentially life-threatening situations. A systolic blood pressure of 90 mmHg is considered the threshold where patients may start to exhibit signs and symptoms of reduced circulatory capacity, such as dizziness, fainting, or shock. While options like 80 mmHg suggest more severe hypotension, it's important to note that 90 mmHg represents the recognized cutoff point in clinical practice for diagnosing hypotension in adults. Thus, any systolic blood pressure below this value is typically classified as hypotensive.

3. What is the term for a thrombus that breaks loose and moves with the bloodstream?

A. Aneurysm

B. Embolism

C. Stenosis

D. Thrombosis

An embolism refers specifically to a thrombus that has detached from its original site and is carried through the bloodstream. When a thrombus forms, it typically adheres to a blood vessel wall, but if it dislodges, it can travel through the circulatory system and potentially obstruct blood flow in other areas, leading to serious complications. The movement of the embolus can result in a blockage of a blood vessel, which may cause issues such as a heart attack or stroke, depending on where the embolism travels. Understanding embolisms is crucial in emergency medicine since they can lead to acute and life-threatening conditions that require immediate intervention. In contrast, other terms like aneurysm refer to an abnormal bulge in a blood vessel, stenosis describes a narrowing of a vessel, and thrombosis is the formation of a thrombus within a blood vessel in situ. Thus, the terminology is specific and plays a pivotal role in identifying and managing various vascular conditions.

4. Which of the following is a common side effect of activated charcoal?

A. Hypertension

B. Constipation

C. Bradycardia

D. Diarrhea

Activated charcoal is commonly used in emergency medicine to treat certain types of poisoning and overdose by adsorbing toxins in the gastrointestinal tract. One of the side effects associated with activated charcoal administration is constipation. This occurs because activated charcoal can absorb water in the intestines, making stool less bulky and harder to pass. It's important for healthcare providers to monitor patients for this side effect when administered activated charcoal, as it can lead to discomfort and other complications if severe. While activated charcoal can also lead to other gastrointestinal effects such as diarrhea in some cases, constipation is noted more frequently as a direct result of its binding properties and the reduction in gastrointestinal motility caused by the charcoal. Understanding these effects helps EMTs provide better care and guidance to patients following the consumption of activated charcoal.

5. What occurs when pressure within the skull increases due to brain swelling?

A. Brain receives more oxygen

B. Decrease in blood flow to the brain

C. Increase in cerebrospinal fluid

D. Reduction of brain function

When pressure within the skull increases due to brain swelling, a decrease in blood flow to the brain occurs as a physiological response. This condition is often referred to as increased intracranial pressure (ICP). As the pressure rises, it can compress blood vessels, restricting blood flow and thereby reducing the amount of oxygen and nutrients that reach the brain tissue. When the brain is unable to receive adequate blood flow, critical functions may be compromised, leading to potential damage. In scenarios where the pressure continues to escalate, it can result in further neurological deficits or brain injury. Understanding the mechanics behind increased ICP is crucial for EMTs, as it underscores the importance of monitoring and managing head injuries effectively to prevent worsening conditions for patients.

6. During what condition may a patient be at risk of developing an open fracture?

A. Improper CPR

B. Splinting a closed fracture

C. Transport on uneven surfaces

D. Applying a restrictor band

An open fracture occurs when there is a break in the bone that results in the bone protruding through the skin or a fracture that leads to an open wound near the site of the fracture. The process of splinting a closed fracture, if done improperly, can increase the risk of transforming a closed fracture into an open fracture. If the splint is applied too tightly, it may cause excessive movement or pressure on the fractured bone, potentially leading to skin breakdown that can result in an open fracture. Therefore, the context of splinting is critical, as the goal is to stabilize and protect the injury while minimizing movement. Improper CPR typically does not relate to fractures. Transporting on uneven surfaces may increase the risk of injury but is not directly associated with the development of an open fracture from pre-existing conditions. Applying a restrictor band generally pertains to controlling bleeding or reducing blood flow rather than directly influencing the condition of a fracture. Thus, the act of splinting a closed fracture can, under certain circumstances, lead to complications that may result in an open fracture, making this choice the most pertinent to the question.

7. What is the primary action of albuterol?

A. Antihistamine

B. Bronchodilator

C. Corticosteroid

D. Expectorant

The primary action of albuterol is that it serves as a bronchodilator. This means that it works by relaxing the muscles of the airways, leading to an expansion of the bronchial passages. Albuterol is commonly used to treat conditions such as asthma and chronic obstructive pulmonary disease (COPD), where airway constriction makes breathing difficult. By opening the airways, albuterol increases airflow to the lungs, thereby alleviating symptoms such as wheezing, shortness of breath, and coughing. In contrast, the other options refer to different classes of medications that serve different purposes. Antihistamines are primarily used to relieve allergy symptoms by blocking the effects of histamine. Corticosteroids reduce inflammation and are often used for chronic inflammatory conditions but do not provide the immediate bronchodilation that albuterol does. Expectants help loosen mucus in the airways to facilitate easier coughing but do not act specifically to dilate the bronchi. Thus, recognizing albuterol's role as a bronchodilator is crucial for understanding how it assists patients with respiratory distress.

8. Which symptom may indicate that a patient is experiencing tachycardia after administration of albuterol?

A. Slow heartbeat

B. Rapid heartbeat

C. Shortness of breath

D. Profuse sweating

The presence of a rapid heartbeat is a notable symptom that can indicate tachycardia, particularly after the administration of albuterol, a common bronchodilator used to treat conditions like asthma and COPD. Albuterol works by stimulating beta-adrenergic receptors, leading to relaxation of the airway muscles, which helps improve airflow. However, this stimulation also affects the heart, potentially increasing heart rate. When a patient experiences tachycardia, their heart rate exceeds normal resting levels, often defined as over 100 beats per minute in adults. This response can be particularly pronounced in individuals who might be sensitive to albuterol or when given higher doses. Recognizing this symptom is crucial for EMTs, as it allows them to assess the patient's response to medication and consider the need for further evaluation or intervention. While symptoms such as shortness of breath may be related to respiratory issues, and profuse sweating might indicate stress or anxiety, it is the rapid heartbeat that directly correlates with tachycardia as a side effect of albuterol use. A slow heartbeat would be contrary to the expected response following albuterol administration, making it an unlikely symptom in this context.

9. What is the pharmacological action of Atrovent?

A. Antihistamine

B. Bronchodilator

C. Corticosteroid

D. Decongestant

Atrovent, or ipratropium bromide, is classified as a bronchodilator. Its primary action is to relax and open the airways in the lungs, making it easier to breathe. It specifically works by blocking the action of acetylcholine on muscarinic receptors in the bronchial smooth muscle, which helps to prevent bronchoconstriction. This makes Atrovent particularly effective in treating conditions such as asthma and chronic obstructive pulmonary disease (COPD) where airflow obstruction is a significant concern. In contrast, an antihistamine, corticosteroid, or decongestant would not have the same mechanism of action. Antihistamines are used primarily to alleviate allergic symptoms by blocking histamine receptors. Corticosteroids work by reducing inflammation in the airways but do not directly relax the smooth muscles. Decongestants primarily relieve nasal congestion but do not have a direct effect on bronchial dilation. Therefore, Atrovent's specific pharmacological action as a bronchodilator is essential for managing respiratory conditions effectively.

10. What is the blood sugar level defined as hypoglycemia?

A. Less than 40

B. Less than 50

C. Less than 60

D. Less than 70

Hypoglycemia is defined as a blood glucose level that is too low to maintain normal physiological function and can lead to symptoms such as dizziness, weakness, confusion, and even loss of consciousness. The American Diabetes Association typically defines hypoglycemia as a blood glucose level of less than 70 mg/dL. Option C, which indicates a blood sugar level of less than 60 mg/dL, is a value that signifies significant glycopenia and may cause more pronounced symptoms, but the widely accepted threshold for diagnosing hypoglycemia remains at 70 mg/dL. Therefore, even though the other values listed may reflect lower glucose levels that can cause severe metabolic issues or are concerning, the established point of reference for hypoglycemia is appropriately recognized as less than 70 mg/dL. This threshold is crucial for first responders and medical professionals to quickly identify potential hypoglycemic patients and administer the necessary interventions to restore safe blood sugar levels.