Adult Critical Care Specialty (ACCS) Practice Exam (Sample)

Study Guide

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Questions

1. Given the patient data presented, which test should be ordered to confirm suspected congestive heart failure?

A. Troponin

B. Brain natriuretic peptide

C. Magnesium level

D. MB fraction of creatinine phosphokinase

2. Which laboratory finding is indicative of bacterial infection in a critically ill patient?

A. Low white blood cell count (WBC)

B. Normal white blood cell count (WBC)

C. Elevated white blood cell count (WBC)

D. Elevated platelet count

3. Which of the following home medications is NOT typically associated with septic shock management?

A. Memantine

B. Furosemide

C. Insulin

D. Aspirin

4. What is a common treatment option for managing acute pulmonary edema?

A. Anticoagulants

B. Diuretics

C. Bronchodilators

D. Narcotics

5. What size endotracheal tube is typically appropriate for the average adult male?

A. 6.0 - 7.0

B. 7.5 - 8.5

C. 8.0 - 9.0

D. 9.0 - 10.0

6. According to the Berlin Criteria, a patient is classified with severe ARDS when their Pao2/Fio2 ratio is?

A. Less than 100

B. Between 100 and 200

C. Greater than 200

D. Greater than 300

7. If a patient shows signs of confusion and altered consciousness, which of the following scales should be utilized to assess their level of awareness?

A. Cardiac rhythm monitor

B. Glasgow Coma Scale

C. Apgar score

D. FIM instrument

8. In relation to ICU delirium, which risk factor is commonly noted?

A. Increased age of the patient

B. Prolonged mechanical ventilation

C. Use of sedative medications

D. Unexpected patient transfers

9. What initial treatment should be recommended for a patient with a glucose level of 256, potassium level of 5.8, and bicarbonate of 15?

A. Insulin

B. Sodium bicarbonate

C. Fluids

D. Calcium gluconate

10. What initial intervention is recommended for a patient wth significant bradycardia post sedation?

A. Reduce the oxygen flow to 2 lpm

B. Initiate IV dopamine

C. Discontinue propofol

D. Initiate IV midazolam

Answers

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

Explanations

1. Given the patient data presented, which test should be ordered to confirm suspected congestive heart failure?

A. Troponin

B. Brain natriuretic peptide

C. Magnesium level

D. MB fraction of creatinine phosphokinase

The test that should be ordered to confirm suspected congestive heart failure (CHF) is Brain natriuretic peptide (BNP). BNP is a hormone produced by the heart in response to increased pressure that often occurs when heart failure develops or worsens. Elevated levels of BNP in the blood indicate that the heart is under stress and not functioning efficiently, which is a hallmark of congestive heart failure. When CHF is suspected clinically, measuring BNP levels is a valuable diagnostic tool. It helps differentiate heart failure from other conditions presenting with similar symptoms, such as pulmonary disease. In addition, BNP levels correlate with the severity of heart failure, providing vital information for treatment decisions. Troponin tests are primarily used to diagnose myocardial infarction and assess cardiac injury, making them less specific for CHF. Magnesium levels are generally assessed in situations where electrolyte imbalances could affect cardiac function, but they do not specifically confirm heart failure. The MB fraction of creatinine phosphokinase is related to cardiac damage, but similar to troponin, it does not provide confirmation of heart failure itself. Thus, BNP is the most appropriate test for confirming suspected congestive heart failure.

2. Which laboratory finding is indicative of bacterial infection in a critically ill patient?

A. Low white blood cell count (WBC)

B. Normal white blood cell count (WBC)

C. Elevated white blood cell count (WBC)

D. Elevated platelet count

An elevated white blood cell count (WBC) is indicative of a bacterial infection in critically ill patients because it reflects the body's immune response to the presence of pathogens. When bacteria invade the body, the immune system reacts by producing more white blood cells, particularly neutrophils, which are key players in combating bacterial infections. In the context of critical illness, monitoring WBC counts provides valuable information about the patient's infectious status. A significantly elevated WBC count, often accompanied by a left shift (an increase in immature white blood cells), suggests active infection and is a common finding in severe bacterial infections, such as sepsis. In contrast, low or normal WBC counts can occur in various conditions, including viral infections or immunosuppression, and are not typically associated with an adequate immune response to bacterial pathogens. An elevated platelet count does not directly correlate with the presence of bacterial infection and could indicate other processes like inflammation or tissue injury. Therefore, the elevated WBC count is the most relevant laboratory finding to indicate a potential bacterial infection in critically ill patients.

3. Which of the following home medications is NOT typically associated with septic shock management?

A. Memantine

B. Furosemide

C. Insulin

D. Aspirin

In the context of septic shock management, it's important to understand the typical therapeutic interventions and the purpose of various medications. Insulin is primarily utilized for managing glucose levels in diabetic patients, especially in cases where hyperglycemia occurs, but it does not play a direct role in the treatment of septic shock itself. The primary management of septic shock focuses on volume resuscitation, vasopressor support, and broad-spectrum antibiotics, none of which involve the use of insulin as a standard intervention. On the other hand, furosemide may be administered in specific scenarios, such as fluid overload, where diuresis can relieve symptoms and enhance respiratory function. Aspirin may be used for its antipyretic and anti-inflammatory properties in patients with septic conditions, though it is not a front-line therapy. Memantine, while typically used for Alzheimer's treatment, does not have a known association with the management of septic shock, but may not necessarily contraindicate treatment. Understanding these medications' roles highlights why insulin is typically not involved in septic shock management compared to the others, which are either more relevant or may be used based on specific indications within the scope of critical care.

4. What is a common treatment option for managing acute pulmonary edema?

A. Anticoagulants

B. Diuretics

C. Bronchodilators

D. Narcotics

Managing acute pulmonary edema typically focuses on reducing fluid overload and alleviating symptoms associated with congestion in the lungs. One of the primary treatments for this condition is the use of diuretics, which work by promoting the excretion of excess fluids and sodium through the urine. This helps to decrease pulmonary congestion and reduces the workload on the heart, making it easier for the patient to breathe. Diuretics are particularly effective in cases of heart failure, where fluid accumulation can lead to pulmonary edema. By reducing the volume of fluid in the body, diuretics assist in lessening the pressure in the pulmonary capillaries, alleviating the symptoms that patients experience, such as shortness of breath and decreased oxygenation. Other treatments like bronchodilators and narcotics may play a supportive role in symptomatic relief or management of associated anxiety but do not address the underlying fluid overload. Anticoagulants are typically not utilized in the management of pulmonary edema unless there is a concurrent condition, such as pulmonary embolism, that warrants their use.

5. What size endotracheal tube is typically appropriate for the average adult male?

A. 6.0 - 7.0

B. 7.5 - 8.5

C. 8.0 - 9.0

D. 9.0 - 10.0

The typical size for an endotracheal tube used in the average adult male is indeed within the range of 7.5 to 8.5 mm in internal diameter. This size range is preferred because it balances the need for adequate airflow and minimizes trauma to the trachea during intubation and ventilation. Endotracheal tubes of this size allow for efficient ventilation, reducing the resistance to airflow, which is particularly important in critical care settings where patient safety and comfort are paramount. Additionally, using a tube that is too small can lead to increased work of breathing and potential hypoxemia, while using one that is too large may cause damage to the airway tissue or make placement difficult. Therefore, the choice of 7.5 to 8.5 mm aligns well with the typical anatomical considerations and physiological needs in adult males.

6. According to the Berlin Criteria, a patient is classified with severe ARDS when their Pao2/Fio2 ratio is?

A. Less than 100

B. Between 100 and 200

C. Greater than 200

D. Greater than 300

The classification of acute respiratory distress syndrome (ARDS) according to the Berlin Criteria is based on the degree of hypoxemia, specifically using the PaO2/FIO2 ratio. In this framework, a patient is deemed to have severe ARDS when their PaO2/FIO2 ratio is less than 100 mmHg. This threshold indicates a critically low level of oxygenation and is a significant marker of the severity of lung injury. In the context of the Berlin Criteria, other classifications exist for moderate and mild ARDS. These categories include a PaO2/FIO2 ratio between 100 and 200 for moderate ARDS and between 200 and 300 for mild ARDS. Therefore, the categorization of severe ARDS with a PaO2/FIO2 ratio of less than 100 underscores the urgent need for advanced therapeutic interventions and close monitoring, as patients in this category are at high risk for significant morbidity and mortality. Understanding these criteria is essential for healthcare professionals involved in the management of ARDS, as it aids in determining the appropriate course of treatment and predicting potential outcomes for patients with varying severities of respiratory failure.

7. If a patient shows signs of confusion and altered consciousness, which of the following scales should be utilized to assess their level of awareness?

A. Cardiac rhythm monitor

B. Glasgow Coma Scale

C. Apgar score

D. FIM instrument

The Glasgow Coma Scale (GCS) is the appropriate tool to assess a patient's level of consciousness and awareness in cases of confusion or altered mental status. The GCS specifically evaluates three aspects: eye opening, verbal response, and motor response. Each of these areas is scored, and the cumulative score provides an objective measure of the patient's neurological function. This scale helps caregivers quickly assess the severity of impairment in consciousness, which is essential in critical care settings. In contrast, a cardiac rhythm monitor is designed for observing heart rhythms and does not provide insights into neurological function. The Apgar score is utilized exclusively for assessing the health of newborns shortly after delivery, focusing on factors like heart rate and respiratory effort, making it irrelevant in cases of adult confusion or altered consciousness. The FIM instrument measures a person's level of disability and aids in evaluating activities of daily living, which does not directly assess cognitive status or awareness. Thus, the GCS stands out as the most appropriate choice for assessing levels of consciousness in a patient showing signs of confusion.

8. In relation to ICU delirium, which risk factor is commonly noted?

A. Increased age of the patient

B. Prolonged mechanical ventilation

C. Use of sedative medications

D. Unexpected patient transfers

Among the listed options, prolonged mechanical ventilation is a recognized risk factor for ICU delirium. Patients who require extended periods of mechanical ventilation often experience a variety of stressors related to their critical illness, including sedative use, sleep deprivation, and disruption of their circadian rhythms. Furthermore, the physical and emotional stress from being intubated and reliant on mechanical support can contribute to confusion, altered cognition, and a higher likelihood of developing delirium. While increased age, use of sedative medications, and unexpected patient transfers can indeed influence the development of delirium, the association between prolonged mechanical ventilation and ICU delirium is one of the most well-established risk factors. The complexity and duration of mechanical ventilation complicate the patient's clinical status, increasing the risk of delirium significantly. Consequently, identifying and managing patients who are at risk due to prolonged mechanical ventilation is critical in critical care settings to reduce the incidence of delirium and improve overall outcomes.

9. What initial treatment should be recommended for a patient with a glucose level of 256, potassium level of 5.8, and bicarbonate of 15?

A. Insulin

B. Sodium bicarbonate

C. Fluids

D. Calcium gluconate

In this scenario, the patient's elevated glucose level suggests possible hyperglycemia, which is often seen in conditions like uncontrolled diabetes or diabetic ketoacidosis (DKA). The bicarbonate level indicates metabolic acidosis, as a bicarbonate level of 15 mEq/L is below the normal range. Insulin is the cornerstone of initial treatment in cases involving hyperglycemia, especially when metabolic acidosis is present. Administering insulin will help reduce the blood glucose levels by promoting glucose uptake into the cells, simultaneously addressing the underlying issue contributing to metabolic acidosis. In cases of DKA, which is often indicated by elevated glucose and low bicarbonate levels, insulin therapy not only lowers blood sugar but also aids in the correction of acidosis through the reduction of ketone production. While fluids are also important in the management of such patients, in instances of significant metabolic derangement, the administration of insulin takes priority as it directly addresses the cause of the elevated glucose and the resulting symptoms. Furthermore, sodium bicarbonate is typically reserved for severe acidosis with a pH below 7.0, and calcium gluconate is not indicated for this metabolic situation. Thus, initiating treatment with insulin is the most appropriate first step in this case.

10. What initial intervention is recommended for a patient wth significant bradycardia post sedation?

A. Reduce the oxygen flow to 2 lpm

B. Initiate IV dopamine

C. Discontinue propofol

D. Initiate IV midazolam

In the case of significant bradycardia following sedation, discontinuing the sedative agent, such as propofol, is the most appropriate initial intervention. Propofol is known to cause cardiovascular effects, including hypotension and bradycardia, particularly when used in higher doses or in sensitive patients. By stopping the drug, the healthcare provider can allow the patient's cardiovascular system to stabilize and potentially reverse the bradycardia. Reducing oxygen flow is not an appropriate intervention as it does not address the underlying issue of bradycardia. Instead, maintaining adequate oxygenation is critical in any patient experiencing bradycardia, especially post sedation. Administering IV dopamine may be considered later if the bradycardia persists and is symptomatic. Dopamine can help to increase heart rate and improve hemodynamics, but it's typically not the first step; addressing the cause by discontinuing the sedation is prioritized. Initiating IV midazolam is also not suitable in this scenario, as benzodiazepines can further depress the central nervous system and exacerbate bradycardia. Midazolam, like propofol, is a sedative and continuing or adding such agents would not help in managing bradycardia. Therefore