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ENC(C) Review Questions

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1. You are caring for a patient with complaints of central chest pain radiating to their neck, arms, and shoulders. The pain worsens with deep inspiration. Vitals signs are BP 110/60 mmHg, HR 110 bpm, respiratory rate (RR) 18 breaths/minute, Temp 38.8°C. The electrocardiogram (ECG) reveals diffuse ST segment elevation. Which of the following assessment findings would you anticipate when auscultating the patient's chest?
   A. Pleural friction rub
   B. Pansystolic murmur
   C. Pericardial friction rub
   D. S_3 gallop

2. You are caring for a patient who has just arrived via air ambulance. He was the driver of a single vehicle rollover collision, ejected from the vehicle. The patient has suffered multiple traumatic injuries to his face, chest, and abdomen. Which of the following assessment findings is most concerning?
   A. Moderate bleeding from scalp laceration
   B. Clear, yellowish liquid draining from the ears
   C. Harsh, high pitched sound on inspiration/expiration
   D. Bilateral sluggish pupils of 3 mm

3. You are caring for a patient who sustained burns in an explosion in the garden shed. Which of the following assessment findings would make you anticipate early intubation?
   A. Circumferential burns to both arms
   B. Carboxyhemoglobin (COHgb) level of 14%
   C. Arterial CO_2 level ($PaCO_2$) of 45 mmHg
   D. Nasal mucosa inflammation

4. An 18-year-old patient with sickle cell disease is being discharged home after being in the emergency department for an acute pain episode. Which statement below indicates that they understand their treatment plan?
   A. "I have been thinking of taking an iron supplement to boost my hemoglobin."
   B. "I think I should drink extra fluids today"
   C. "I plan on travelling to the mountains tomorrow"
   D. "I will take a cold shower when I get home to help the pain"

5. You are caring for a patient with acute diabetic ketoacidosis (DKA). You receive medical orders to initiate an intravenous (IV) with normal saline and regular insulin 10 units bolus. Prior to administering the medication, you note the following lab results:
   - pH 7.25
   - Glucose 26.4 mmol/L
   - Potassium 2.7 mmol/L

6. Which of the following is the most appropriate response to this situation?
   A. Start the IV fluids and administer the insulin bolus as ordered
   B. Hold the insulin and notify the physician of the potassium level of 2.2 mmol/L
   C. Hold the IV fluids and insulin until the patient is examined by physician
   D. Recheck the glucose level

Answer key with rationale

1. Correct answer: C

Rationale: The patient is exhibiting signs and symptoms of pericarditis. Therefore, a typical assessment finding would include auscultation of a pericardial friction rub (best heard with the patient leaning forward) (Foley & Sweet, 2020, p. 237, 246). A pleural friction rub is most often related to pleural effusion or pleurisy; however, it may also present as a result of viral infection and/or other inflammatory conditions within the chest (Adderley & Sharma, 2021, para. 4), such as myocarditis (Navarroli, 2018, p. 175). A pansystolic (holosystolic) murmur is caused by regurgitation of the mitral or tricuspid valve (Meyer, 2020), as well as ventricular septal defect (Haynes & Henry, 2022, p. 319). An S_3 gallop is indicative of a noncompliant ventricle with fluid overload, such as in heart failure and valvular disease (Lough, 2022a, pp. 200–201). It may also be heard in myocarditis if cardiac dysfunction continues to progress (Navarroli, 2018, p. 175). It is important to remember that although an S_3 gallop can be normal in children, young adults, and pregnant women, it is indicative of cardiac dysfunction if other cardiac symptoms are present (Lough, 2022a, pp. 200–201).

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2. Correct answer: C

Rationale: Stridor is a harsh, high-pitched sound indicative of airway obstruction; it may be heard on inspiration and/or expiration. Stridor is a critical finding during the initial assessment (primary survey [ABCDE-FG] - Airway) requiring immediate life-saving intervention. Moderate bleeding from a scalp laceration requires pressure and/or dressing be applied; however, unless the patient's condition requires reprioritization (i.e., C-ABC), such as in massive hemorrhage, critical findings related to airway must be addressed before moving on in the primary survey. Clear, yellowish drainage from the ears (cerebrospinal fluid [CSF]) is typically indicative of basal skull fracture. Bilateral sluggish pupils may also reflect serious neurological injury. While these findings are concerning, they do not take priority over airway. The aim at this point would be to prevent secondary brain injury and plan/prepare for interventions in the secondary survey (Powers-Jarvis, 2020, pp. 28–34).

3. Correct answer: D

Rationale: Nasal mucosa inflammation or irritation along with mild edema may progress rapidly with further edema and airway occlusion due to heat-related trauma and smoke inhalation (McLellan, 2018, p. 278). Circumferential burns to both arms would cause the nurse to anticipate the need for escharotomy to restore circulation and neurovascular status to the limb(s) (Wraa, 2020, p. 513). $PaCO_2$ level of 45 mmHg is within normal range (35–45 mmHg) (Milici, 2018, p. 454). COHgb levels below 15% are rarely associated with intoxication and are not uncommon in heavy smokers (Wraa, 2020, p. 509).

4. Correct answer: C

Rationale: Adequate hydration is essential to managing prevention of acute pain episodes and sickling of the red blood cells. Iron supplements are not prescribed although you may see Folic Acid prescribed to enhance RBC production and repair, as well as reduce symptoms of anemia. This type of anemia is not caused by low iron levels, and patients who take iron supplements with sickle cell disease are at risk for building up too much iron in the body, which will lead to end organ damage. Sickle cell crisis can be caused by blood loss, illness (it's important the patient is up-to-date with all vaccinations), high altitudes, stress, dehydration, elevated temperature, or extreme cold temperatures (Field & Vichinsky, 2022). All options are incorrect except B.

5. Correct answer B

Rationale: Diabetic ketoacidosis is a complication of insulin deficiency typified by elevated glucose levels, urine ketones, and metabolic acidosis (pH between 6.8–7.3), which may also be accompanied by sodium and potassium abnormalities (Miller, 2022). In early DKA, potassium levels may be normal or elevated due to volume depletion (hyperosmolality) and movement of potassium from the intracellular space to the intravascular space (into the blood) as a result of metabolic acidosis. With progression of DKA and continued urinary excretion of potassium, total body deficiency of potassium occurs (hypokalemia) (Brashers et al., 2019, pp. 693–694). Administration of insulin promotes the influx of potassium back into the cell, causing serum potassium levels to fall even lower (Miller, 2020). Thus, insulin therapy is to be initiated only if the patient's potassium level is 3.3 mmol/L or greater (Hirsch & Emmet, 2021; Recznik, 2020).

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