



ENC(C) Review Questions

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Question 1

1. You are caring for a patient who is suspected of having sustained carbon monoxide (CO) poisoning from a furnace malfunction in their trailer. They were initially confused and had difficulty focusing on conversation. After administration of high flow oxygen, they are responding appropriately and complaining of nausea and headache. Their carboxyhemoglobin level (COHb) is 13%. Which of the following statements are true with regard to this patient care scenario?
- A. CO poisoning can result in a rebound deterioration within hours to days after exposure
 - B. It is unlikely to be CO exposure as they do not recover with oxygen alone
 - C. Hyperbaric oxygen therapy is required for definitive CO management in all exposures
 - D. Carboxyhemoglobin (COHb) is a poor indicator of toxicity with CO exposure.

Question 2

2. An 18-year-old patient is escorted into the emergency department by family. They are incoherent with rambling speech and unable to walk unassisted. The family believes they have been “depressed lately” and thinks they have overdosed on “something.” Their vital signs (VS) and clinical presentation are as follows:
- B/P 110/80 mmHg
 - HR 110 beats per minute (bpm)
 - RR 24 breaths per minute
 - Temp 38°C (oral)
 - GCS 11/15
 - Pupils 6 mm/reactive
 - Dry skin, mucous membranes

Based on their VS and clinical presentation, the ED nurse suspects which toxidrome?

- A. Opioid overdose
- B. Anticholinergic overdose
- C. Sympathomimetic overdose
- D. Acetaminophen overdose

Question 3

3. For the patient in the previous scenario, a priority intervention for this patient would be which of the following?
- A. Find the antidote
 - B. Insert one IV and give fluids at 50mLs/hr
 - C. Insert a nasogastric tube for gastric lavage
 - D. Prepare for possible intubation

Question 4

4. A 22-year-old patient has ingested the vaping liquid from several vaping pens containing nicotine. Their vital signs (VS) and clinical presentation are as follows:
- B/P 184/115 mmHg
 - HR 144 beats per minute (bpm)
 - RR-24 breaths per minute
 - Temp 37°C (temporal artery)
 - SpO₂ – 93% on room air
 - GCS 10/15
 - Copious oral secretions, vomiting, and diarrhea

The highest priority intervention would be which of the following?

- A. Administering a benzodiazepine
- B. Prepare to manage the airway
- C. Administering a fluid bolus
- D. This is a cholinergic syndrome – administer Atropine

Question 5

5. A patient arrives in your ED after collapsing while running a marathon. Race organizers sent information that the individual pre-hydrated with several litres of water as well as ingesting water at every aid station. The patient is confused and complains of dizziness, nausea and a severe (8/10) headache. This situation is consistent with which of the following mechanisms?
- A. Prolonged QT syndrome
 - B. Gastroenteritis
 - C. Hypoglycemia
 - D. Exercise associated hyponatremia

Answers:

Question 1

Correct answer: A

Manaker & Perry (2023) note that CO is eliminated via pulmonary circulation with administration of oxygen. This begins immediately on removal from the exposure. A rebound effect is attributed to a late release of CO from myoglobin allowing it to reattach to hemoglobin (Tuna et al., 2014). Hyperbaric oxygen therapy is recommended for COHb >25% (?15% for pregnant patients), loss of consciousness, severe metabolic acidosis or end organ ischemia (Manaker & Perry, 2023). Normal COHb levels are <5% and levels of 25% indicate a significant exposure (Manaker & Perry, 2023; Tuna et al., 2014).

Question 2

The correct answer is B.

The clinical picture may be unclear regarding what/when/why in explaining the patient's clinical presentation. Toxidromes may share similar signs and symptoms, thus a definitive toxidrome is not always apparent (Levine, 2023). Opiate overdose typically will present with small pinpoint pupils and respiratory depression; sympathomimetic presentations typically have hypertension/tachycardia; and acetaminophen ingestions typically may have normal VS and abdominal pain due to GI/liver involvement. This presentation is typical of anticholinergic syndrome with increased VS parameters and mumbling speech (Levine, 2023; Mark & Goldman, 2023). If the overdose picture is confusing, consider polypharmacy ingestion (multiple drugs; Levine, 2023).

Question 3

Correct answer D

The patient's GCS is 11 and likely will deteriorate so preparing for a definitive airway is high on the list of priority interventions (Levine, 2023, Mark & Goldman, 2023). The type/amount/and when the ingestion took place is unknown. Gastric lavage is not recommended nor is fluid bolus unless the VS are clinically unstable. Finding antidotes needs further assessment of history. The ABC's approach takes priority over finding antidotes (Levine, 2023).

References

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Question 4

Correct answer B

Rationale:

Severe nicotine intoxication can result in respiratory and cardiovascular collapse (Barbuto, 2023; Henstra, 2022). The patient may exhibit cholinergic symptoms initially such as increased oral secretions, nausea, vomiting, diarrhea, elevation in blood pressure causing hypertension and tachycardia. The later stage of severe nicotine toxicity includes a rapid progression to organ failure and can be lethal. Lethargy, seizures, and coma can follow early-stage symptoms. Muscle weakness, poor muscle tone can result in respiratory paralysis.

The priority for patient care starts with assessment in the primary survey (Levine, 2023). Airway and breathing need to be secured due to the potential rapid deterioration of the patient's clinical condition. A benzodiazepine may be reasonable to administer for sedation and if seizures occur.

Questions 5

Correct answer D

Exercise associated hyponatremia is a situation where there is increased total body free water relative to total body sodium. The primary mechanism is increased intake of hypotonic fluids although breakdown of glycogen during exercise (Rosner & Hew-Butler, 2023) is another source as is SIADH from physical exertion (Buck et al, 2023). The scenario gives us the information that the individual ingested a significant amount of water prior to and during the race prior to collapse. There is insufficient information to identify hypoglycemia which is frequently associated with alterations to LOC, gastroenteritis which might be associated with the nausea and vomiting, or prolonged QT syndrome which might be indicated with the sensation of dizziness. Hyponatremia results in an osmotic gradient that causes free water to move from the vascular bed to brain and lung, causing cerebral edema and altered LOC (Buck et al., 2023).