CCP-C Critical Care Prep

Free Practice Test — 30 Real Exam-Style Questions

with full answer key & explanations

Practice Questions

Try all 30 first, then check the answer key at the back.

1. A 54-year-old female is diagnosed with an acute upper gastrointestinal bleed due to a duodenal ulcer. The patient presents with hematemesis and melena. Vital signs are BP 95/60, P 120, R 22, and SpO_{2} 94%. After initial stabilization, which of the following medications is most appropriate to reduce gastric acid secretion and stabilize the ulcer?

A. Antacids
B. H2-receptor antagonists
C. Sucralfate
D. Proton pump inhibitors

2. A patient with extensive third-degree burns has undergone a fasciotomy due to developing compartment syndrome in the forearm. Which of the following is the most critical aspect when managing this patient post-fasciotomy to prevent further complications?

A. Aggressive administration of analgesics for pain management
B. Monitoring for adequate distal perfusion and compartment pressure relief
C. Maximizing fluid infusion to maintain blood pressure
D. Elevating the limb to reduce swelling completely

3. You are transporting a patient with severe heart failure who is on a ventricular assist device (VAD). During the transport, you note the patient's urine output, which was adequate at the sending facility, has decreased significantly. What is the most likely reason?

A. VAD thrombosis leading to systemic embolism
B. Impaired renal perfusion due to low VAD flow settings
C. Device malfunction leading to pulmonary congestion
D. Hemorrhage reducing blood volume delivery to the kidneys

4. You are called to a scene where a 70-year-old male is experiencing severe dehydration. The patient's blood test shows an elevated potassium level of 7.2 mEq/L. Which ECG finding is most likely associated with this electrolyte imbalance?

A. Peaked T waves
B. Widened QT interval
C. Widened QRS complex
D. Shortened QT interval

5. You are treating a 55-year-old female with rapid atrial fibrillation at a rate of 190 bpm. She exhibits altered mental status and hypotension. Initial synchronized cardioversion was attempted at 120 J but was unsuccessful. What is your next step in management?

A. Administer diltiazem 0.25 mg/kg
B. Defibrillate at 200 J
C. Administer procainamide 20 mg/min
D. Increase joules and cardiovert

6. Considering the parameters for oxygen delivery in critical care, what is the arterial oxygen content (CaO_2) based on the given data? Parameter Value Cardiac Output (CO) 5 L/min Hemoglobin Concentration (Hb) 15 g/dL Arterial Oxygen Saturation (SaO_2) 98% Partial Pressure of Oxygen (PaO_2) 95 mmHg

A. 15 mL O2/dL
B. 20 mL O2/dL
C. 25 mL O2/dL
D. 18 mL O2/dL

7. A patient is brought to the emergency department showing signs of respiratory distress. Analyze the following arterial blood gas results for this patient and determine the primary acid-base disturbance. What is the best initial treatment? Parameter Normal Values Patient Values pH 7.35 - 7.45 7.28 PaCO2 35 - 45 mmHg 52 mmHg HCO3- 22 - 26 mEq/L 24 mEq/L

A. Metabolic acidosis; administer sodium bicarbonate.
B. Compensated respiratory acidosis; monitor without intervention.
C. Metabolic alkalosis; restrict fluid intake.
D. Respiratory acidosis; administer oxygen and consider ventilatory support.

8. You are evaluating a 45-year-old woman with acute respiratory failure due to a severe asthma attack. Her arterial blood gas analysis yields the following results: Parameter Measurement pH 7.30 PaO2 (mmHg) 55 PaCO2 (mmHg) 55 HCO3- (mEq/L) 30 SaO2 (%) 88 Based on these arterial blood gas results, which of the following interpretations is most accurate with regards to the patient's acid-base status?

A. Respiratory acidosis with uncompensated metabolic acidosis
B. Respiratory alkalosis with compensated metabolic acidosis
C. Respiratory acidosis with compensated metabolic alkalosis
D. Respiratory alkalosis with uncompensated metabolic acidosis

9. Which of the following is not a component of the APGAR score?

A. Grimace
B. Activity
C. Systolic blood pressure
D. Appearance

10. A construction worker is brought to the emergency department after falling from a two-story building. The patient complains of severe lower back pain and exhibits unilateral paralysis in the left leg. What is the most appropriate immediate management strategy?

A. Initiating a rapid infusion of intravenous fluids
B. Positioning the patient in the recovery position
C. Applying a spinal board and immobilizing the spine
D. Administering high-flow oxygen therapy

11. While consulting during air transport, you are examining a patient who began experiencing dizziness and numbness in their fingers shortly after ascending to high altitude. Analyze the following ABG results: pH 7.47, $PaCO_{2}$ 31, HCO3 22. What condition do these results indicate?

A. Respiratory alkalosis
B. Metabolic alkalosis
C. Respiratory acidosis
D. Metabolic acidosis

12. During intense workouts, athletes may experience muscle cramps due to reduced blood flow. Which type of hypoxia is most likely involved in this scenario?

A. Histotoxic hypoxia
B. Hypoxic hypoxia
C. Anemic hypoxia
D. Stagnant hypoxia

13. In the context of emergency air medical transport during crisis evacuations, certain patient conditions are considered relative contraindications due to elevated risks. Review the following scenarios. Which patient would likely be a relative contraindication for air transport?

A. 30-year-old with a 20-week pregnancy experiencing mild contractions
B. 42-year-old female with acute appendicitis post-surgery five days ago
C. 60-year-old male with unstable angina post-MI four days ago
D. 55-year-old male with COPD exacerbation uncontrolled by medication

14. After a 30-minute scuba dive, a diver begins their ascent. During the ascent, they experience a sharp, throbbing pain in their teeth and severe headache. Shortly after surfacing, the pain subsides but leaves them feeling disoriented and fatigued. What is the most likely cause of these symptoms?

A. Barocongestion
B. Barodontalgia
C. Barosinusitis
D. Barotitis Media

15. A critical care paramedic is managing an in-flight transfer of a patient requiring specialized cardiac treatment. According to air medical transport protocols, which of the following is a critical piece of equipment that must always be available on board during the transfer?

A. Portable blood analyzer
B. Cardiac monitor
C. Infusion pump
D. Ventilator

16. A critical care paramedic is preparing for the prolonged transport of a 35-year-old patient with multiple trauma injuries. Which of the following sedatives is most appropriate for maintaining sedation during transport without causing respiratory depression? Sedative Effect Contraindication Midazolam Anxiolytic, amnesic Potential respiratory depression Propofol Rapid onset sedation Hypotension Ketamine Sedation, analgesia Increased intracranial pressure Dexmedetomidine Sedative Bradycardia

A. Propofol
B. Dexmedetomidine
C. Ketamine
D. Midazolam

17. You are transporting a 32-year-old patient with severe bradycardia who becomes unresponsive during the flight. You have begun CPR and intubated him. After 60 seconds, his heart rate is 40 beats per minute. What should you do next?

A. Perform synchronized cardioversion at 100 joules
B. Administer epinephrine IV at 1 mg
C. Continue CPR and reassess after 60 seconds
D. Administer 10 mL of calcium chloride intravenously

18. You are working as a paramedic in a critical care transport team. You are transporting a 65-year-old male patient with a diagnosis of sepsis who is being transferred to a higher-level facility. Review his recent lab values and vital signs: Lab Test Value Reference Range Lactate 4.5 mmol/L 0.5-2.2 mmol/L White Blood Cell (WBC) 18,000/mm3 4,500-11,000/mm3 Blood Pressure 85/50 mmHg 90/60-120/80 mmHg Heart Rate 110 bpm 60-100 bpm Based on these values, what should be your primary concern during the transport of this patient?

A. Ensure adequate perfusion and initiate fluid resuscitation as needed
B. Administer antibiotics to control white blood cell count
C. Monitor for signs of hyperglycemia and administer insulin
D. Prepare for immediate intubation due to elevated heart rate

19. A 60-year-old man arrives in the emergency department with a sudden sensation of a fluttering heart, dizziness, and shortness of breath. His vital signs reveal BP 120/80, P 140, R 20. His ECG shows atrial fibrillation with a rapid ventricular response. You should do which of the following?

A. Perform synchronized cardioversion
B. Administer adenosine
C. Perform immediate defibrillation
D. Initiate continuous cardiac monitoring

20. A 32-year-old female was admitted to the ICU following a severe road accident. Nurses document the vital signs as follows: Heart rate 145 bpm, blood pressure 58/40 mmHg, respiratory rate 35 breaths/min, and urine output is less than 5 mL/hr over the past hour. Which classification of hemorrhage is this patient demonstrating? Analyze the table to determine the appropriate classification.

A. Class I
B. Class III
C. Class II
D. Class IV

21. A 76-year-old male patient with a history of congestive heart failure is being transported to a medical facility. He exhibits symptoms of shortness of breath and leg muscle weakness. Lab results indicate a serum potassium level of 3.1 mEq/L. Which of the following symptoms is most likely to be present in this patient? Patient Age History Symptoms Serum Potassium Level (mEq/L) 76 Congestive Heart Failure Shortness of breath, leg muscle weakness $$3.1$$

A. Fatigue
B. Palpitations
C. Increased deep tendon reflexes
D. Severe dehydration

22. Your 58-year-old male patient has been admitted to the ICU with severe dehydration. You decide to administer intravenous fluids. Which type of fluid, if used improperly, could lead to metabolic alkalosis due to changes in electrolyte balance? Type of Fluid Potential Acid-Base Imbalance Example Isotonic fluid None 0.9% Normal Saline Hypotonic fluid Hyponatremia leading to metabolic alkalosis 0.45% Saline Hypertonic fluid Hypernatremia leading to metabolic acidosis 3% Saline

A. Hypertonic fluid
B. No fluid needed; continue dehydration
C. Hypotonic fluid
D. Isotonic fluid

23. For a 6-month-old child experiencing cardiac arrest due to respiratory failure during ground transport, certain criteria must be met to initiate ECMO. Based on the given parameters, which of the following is NOT a suitable indicator for ECMO support? Parameter Value Age 6 months PaO2 45 mmHg PaCO2 55 mmHg pH 7.20 Persistence without response to maximal intervention True Cardiac Output Significantly reduced

A. pH of 7.20
B. Significantly reduced cardiac output
C. $$PaO_{2}$$ of 45 mmHg
D. $$PaCO_{2}$$ of 55 mmHg

24. A 38-year-old male firefighter is rescued from a burning building and shows signs of severe smoke inhalation and potential airway burns, requiring immediate advanced airway management. Which consideration is most appropriate for performing intubation in this scenario?

A. Administer high doses of anesthetic to ensure complete sedation
B. Prepare a smaller endotracheal tube due to potential airway edema
C. Use a nasopharyngeal airway for initial management
D. Avoid video laryngoscopy due to limited visibility with soot

25. You are caring for a 30-year-old female patient who has just undergone surgery with general anesthesia. Post-operatively, she experiences rapid heart rate, muscle rigidity, elevated body temperature, and increased CO_{2} production. What is the recommended treatment for managing this patient's condition?

A. Dantrolene sodium 2.5 mg/kg IVP
B. Epinephrine 1 mg IVP
C. Midazolam 2 mg IVP
D. Lidocaine 1 mg/kg IVP

26. A 35-year-old diabetic patient presents to the emergency department with nausea, vomiting, and abdominal pain. You obtain the following arterial blood gas values and note the presence of ketones in the urine. Component Value (Patient A) Normal Range pH 7.28 7.35 - 7.45 Bicarbonate (HCO3-) 12 mEq/L 22 - 26 mEq/L Ketones (urine) Positive Negative

A. Lactic acidosis
B. Respiratory alkalosis
C. Metabolic ketoacidosis
D. Respiratory acidosis

27. You are managing a critically ill 45-year-old male in the ICU who is mechanically ventilated. The ETCO2 monitor shows an elevated level of 60 mmHg. Which of the following causes should you consider?

A. Rebreathing due to ventilator settings
B. Pulmonary embolism
C. Hypothermia
D. Hypovolemia

28. You are assessing a 45-year-old male patient with a severe neck injury resulting from a vehicular crash. What mnemonic can assist in determining the most suitable intubation method given the patient's limited neck mobility and potential airway complications?

A. LEMON
B. MOOSE
C. ROSCO
D. HEAVEN

29. You are treating a 55-year-old male who has just suffered an acute myocardial infarction and is hypotensive with a blood pressure of 85/55 mmHg and a heart rate of 120 beats per minute. Which of the following treatments should be administered immediately to stabilize the patient's hemodynamic status?

A. Dopamine
B. Aspirin
C. Loratadine
D. Furosemide

30. During an abdominal surgery on a 45-year-old male, the medical team notices variable blood pressure readings throughout the procedure. What is the most likely cause of these variations?

A. Organ pressure by instruments
B. Patient movement during surgery
C. Reaction to surgical lighting
D. External noise causing stress

Answer Key & Explanations

1. D — Proton pump inhibitors
Proton pump inhibitors are the first-line treatment for ulcer-related gastrointestinal bleeding as they help reduce gastric acid secretion, promoting ulcer healing. Antacids provide symptomatic relief but do not address the underlying acid secretion effectively. H2-receptor antagonists are less effective than proton pump inhibitors in treating acute gastrointestinal bleeding from ulcers. Sucralfate acts as a protective barrier at the ulcer site but does not significantly reduce acid secretion.

2. B — Monitoring for adequate distal perfusion and compartment pressure relief
Answer: Monitoring for adequate distal perfusion and compartment pressure relief Following a fasciotomy, it's crucial to monitor the affected limb for adequate perfusion and ensure that the compartment pressure does not rise again, which could lead to tissue damage or necrosis. Elevation of the limb should be moderate to promote venous return while maintaining performance. Fluid management and analgesics are essential but should be balanced against the risk of exacerbating compartment pressure.

3. B — Impaired renal perfusion due to low VAD flow settings
The most likely cause of decreased urine output in this scenario is impaired renal perfusion due to low VAD flow settings, which may not provide adequate circulatory support to maintain kidney function. The other options do not directly relate to the VAD's effect on renal perfusion. Device malfunction causing pulmonary congestion or VAD thrombosis leading to systemic embolism would cause different clinical signs. Hemorrhage could lead to reduced blood volume and systemic effects, but it is not as directly related to VAD operations concerning reduced urine output.

4. C — Widened QRS complex
In cases of hyperkalemia, where serum potassium levels exceed 7.0 mEq/L, ECG changes such as a widened QRS complex and prolonged PR interval are common. These changes reflect impaired cardiac repolarization caused by high potassium levels. Peaked T waves often occur at lower potassium levels, typically between 5.5 mEq/L - 6.5 mEq/L.

5. D — Increase joules and cardiovert
The patient exhibits unstable hemodynamics due to rapid atrial fibrillation. After unsuccessful cardioversion at 120 J, increasing the joules for synchronized cardioversion is the correct approach. Medications like diltiazem and procainamide are not indicated in the setting of hemodynamic instability. Defibrillation is inappropriate for a patient with a pulse.

6. B — 20 mL O2/dL
CaO_2 calculation uses the formula: $$CaO_2 = (Hb imes SaO_2 imes 1.34) + (PaO_2 imes 0.003)$$ Where Hb = 15 g/dL, SaO_2 = 98%, PaO_2 = 95 mmHg. Plugging in these values, CaO_2 = $$15 imes 0.98 imes 1.34 + 95 imes 0.003$$. This results in approximately 20 mL O2/dL.

7. D — Respiratory acidosis; administer oxygen and consider ventilatory support.
The ABG results indicate respiratory acidosis due to elevated $$PaCO_{2}$$ (52 mmHg) and low pH (7.28),

with normal HCO3-. The primary treatment should be to administer oxygen and consider ventilatory support to enhance ventilation and lower $$CO_{2}$$ levels.

8. C — Respiratory acidosis with compensated metabolic alkalosis
The pH of 7.30 indicates acidemia, suggesting an acid-base imbalance. The elevated $$PaCO_{2}$$ of 55 mmHg is consistent with respiratory acidosis, typically seen in conditions like severe asthma where ventilation is compromised. The HCO3- is higher than normal, indicating a compensatory metabolic alkalosis mechanism to counteract the respiratory acidemia. This reflects how the body compensates over time to balance pH in the presence of chronic respiratory conditions.

9. C — Systolic blood pressure
Answer: Systolic blood pressure The APGAR score evaluates a newborn's condition immediately after birth based on five categories: appearance, pulse, grimace, activity, and respiration. Systolic blood pressure is not part of the APGAR score.

10. C — Applying a spinal board and immobilizing the spine
Applying a spinal board and immobilizing the spine is crucial in managing suspected spinal injuries effectively. This prevents further damage to the spinal cord or surrounding structures. Immobilization should be prioritized in cases of trauma with potential spinal involvement, especially when a fall from height is involved and there is indication of neurological involvement like paralysis. Administering high-flow oxygen or rapid IV fluids is not the immediate priority for managing spinal injuries. Additionally, the recovery position is typically used for unconscious patients to maintain the airway but not for spinal stabilization.

11. A — Respiratory alkalosis
The ABG results show a high pH of 7.47, indicating alkalosis. The low $$PaCO_{2}$$ of 31 mmHg suggests that the alkalosis is respiratory in nature, often due to hyperventilation under low oxygen conditions, such as at high altitude. Metabolic alkalosis would present with an increased HCO3. Respiratory acidosis would show a decreased pH and increased $$PaCO_{2}$$. Metabolic acidosis would have a decreased HCO3 and normal or decreased $$PaCO_{2}$$.

12. D — Stagnant hypoxia
Stagnant hypoxia occurs when poor circulation leads to tissue ischemia, such as during muscle cramps caused by reduced blood flow during workouts. Histotoxic hypoxia involves the inability of cells to use oxygen. Hypoxic hypoxia occurs due to inadequate oxygen in the blood, and anemic hypoxia involves low hemoglobin levels.

13. D — 55-year-old male with COPD exacerbation uncontrolled by medication
COPD exacerbations can lead to severe respiratory distress, making air transport potentially dangerous due to changes in pressure and oxygen availability. Other conditions listed, while serious, don't present the same level of immediate transport risk.

14. B — Barodontalgia
Answer: Barodontalgia Barodontalgia, often known as the flyer's toothache, is the result of pressure changes causing discomfort in teeth due to air trapped beneath fillings expanding during ascent or descent. It is a common issue among those experiencing rapid altitude or pressure changes, such as divers or aviators. Barosinusitis affects the sinuses due to altitude changes, often leading to facial pain and nosebleeds. Barotitis Media involves pain in the ears due to pressure changes impacting the middle ear, commonly occurring during descent. Barocongestion is a fictional term with no medical basis, serving as a distractor.

15. B — Cardiac monitor
Answer: Cardiac monitor The cardiac monitor is essential in air medical transports, especially for patients requiring specialized cardiac treatments or are at risk of cardiac complications. It allows paramedics to continuously monitor the patient's heart rate and rhythms and respond promptly if any issues arise. While equipment like infusion pumps or ventilators may also be important, they are utilized based on patient-specific needs, whereas the cardiac monitor is universally required for continuous monitoring in such scenarios.

16. C — Ketamine
Ketamine is the most appropriate choice for maintaining sedation during transport due to its unique property of providing both sedation and analgesia without the risk of respiratory depression. Midazolam and propofol are both known to potentially cause respiratory depression, making them less suitable for this scenario. Dexmedetomidine, while sedative, is associated with bradycardia, which could complicate the patient's condition during transport.

17. B — Administer epinephrine IV at 1 mg
Epinephrine is used to increase heart rate in severe bradycardia when CPR is performed and heart rate remains low. Continuing CPR without medication or administering other treatments initially wouldn't effectively raise the heart rate in this emergent scenario.

18. A — Ensure adequate perfusion and initiate fluid resuscitation as needed
The primary concern in transporting a septic patient with hypotension (blood pressure 85/50 mmHg) and elevated lactate (4.5 mmol/L) is ensuring adequate perfusion. Elevated lactate indicates poor tissue perfusion, and maintaining blood pressure with fluid resuscitation is crucial. Antibiotics, while essential in managing sepsis, are not the immediate focus during transport. Monitoring for hyperglycemia and managing heart rate are important, but they are secondary to maintaining perfusion.

19. D — Initiate continuous cardiac monitoring
In cases of atrial fibrillation with a rapid ventricular response, it is essential to first initiate continuous cardiac monitoring to assess the rhythm and guide further treatment. Immediate cardioversion is reserved for unstable patients who are hemodynamically compromised. Administering adenosine is inappropriate for atrial fibrillation as it is primarily for paroxysmal supraventricular tachycardia (PSVT). Defibrillation is reserved for patients in ventricular fibrillation or pulseless ventricular tachycardia.

20. D — Class IV
Answer: Class IV. The patient's symptoms, such as a heart rate greater than 140 bpm, severely low blood pressure, high respiratory rate, and very low urine output, indicate Class IV hemorrhage which is associated with more than 40% blood loss.

21. A — Fatigue
Hypokalemia is indicated by a serum potassium level below the normal range of 3.5-5.5 mEq/L. Common symptoms include muscle weakness, fatigue, and potential arrhythmias. The patient's symptoms and lab results are indicative of hypokalemia.

22. C — Hypotonic fluid
Answer: Hypotonic fluid Administering hypotonic fluids can cause hyponatremia due to the dilution of sodium in the blood. This can potentially lead to metabolic alkalosis as the body tries to compensate for the low sodium levels, possibly causing an electrolyte imbalance and affecting acid-base status.

23. C — PaO_{2} of 45 mmHg
A PaO_{2} of 45 mmHg can be a common finding in severe respiratory failure, indicating the need for intervention. However, severely reduced PaO_{2} itself is not typically a standalone exclusion criterion for ECMO initiation in respiratory failure. Other parameters, such as sustained metabolic acidosis indicated by pH, significantly reduced cardiac output, and persistent clinical deterioration despite maximal interventions, align more closely with ECMO requirements.

24. B — Prepare a smaller endotracheal tube due to potential airway edema
In cases of smoke inhalation and potential airway burns, airway edema is a significant concern, warranting the preparation of a smaller endotracheal tube. Traditional endotracheal tubes may be too large due to tissue swelling, and ensuring proper breathing is essential.

25. A — Dantrolene sodium 2.5 mg/kg IVP
The patient is displaying signs and symptoms consistent with malignant hyperthermia, a rare but serious reaction to certain anesthetic agents. The first line treatment for this condition is administration of dantrolene sodium at a dose of 2.5 mg/kg IVP. This treatment should be followed by supportive measures such as rapid cooling, oxygen administration, and monitoring of electrolytes and acid-base balance.

26. C — Metabolic ketoacidosis
The low pH and decreased bicarbonate level indicate an acidosis, consistent with metabolic ketoacidosis due to the positive ketones in the urine. Respiratory acidosis would typically have elevated CO_{2} levels, while lactic acidosis would occur with sepsis or liver disease.

27. A — Rebreathing due to ventilator settings
Answer: Rebreathing due to ventilator settings When ETCO2 is elevated in a ventilated patient, consider whether the patient is rebreathing expired carbon dioxide, often due to incorrect ventilator settings or equipment malfunction. Other causes could include decreased respiratory rate or tidal volume and increased metabolic rate.

28. D — HEAVEN
Answer: HEAVEN. The mnemonic HEAVEN is particularly useful in assessing factors such as neck mobility, hypoxemia, and anatomic disruption, which are crucial in determining whether video or direct laryngoscopy is appropriate during intubation.

29. A — Dopamine
Dopamine is commonly used to support blood pressure in patients who are hypotensive due to cardiogenic shock or low cardiac output situations, such as following an acute myocardial infarction. It acts as a vasopressor to increase cardiac output and stabilize blood pressure. Aspirin is used for its antiplatelet effects in acute myocardial infarction but does not address hypotension. Loratadine is an antihistamine, not indicated for this scenario. Furosemide is a diuretic and is not appropriate for immediate hemodynamic stabilization in acute heart failure.

30. A — Organ pressure by instruments
Organ pressure by surgical instruments is the most common cause of variable blood pressure readings during surgery, similar to how umbilical cord compression causes variable decelerations of fetal heart rate during labor. Patient movement is highly unlikely during surgery due to anesthesia. Surgical lighting and external noise typically do not impact blood pressure in this manner.

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