

Test Bank for Advanced Medical Nutrition Therapy 1st Kane

TEST BANK SAMPLE PREVIEW

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RESOURCE TYPE

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Chapter 2 Biochemical Assessment

Multiple Choice

1. Which of the following statements is **TRUE** in regard to the relationship between fluid balance and red blood cell concentrations?

- A. Hypervolemia is likely to contribute to hemoconcentration.
- B. Hypovolemia is likely to contribute to hemoconcentration.
- C. Third spacing is likely to contribute to hemodilution.
- D. Dehydration is likely to contribute to hemodilution.

<Answer: B>

<Subject: Chapter 2>

<A-Head: Fluid and Electrolyte Disorders>

<Complexity: Moderate>

2. Extracellular fluid is made up of:

- A. Interstitial fluid and intravascular fluid
- B. Intracellular fluid and transcellular fluid
- C. Interstitial fluid and lymph
- D. Intercellular fluid and intracellular fluid

<Answer: A>

<Subject: Chapter 2>

<A-Head: Fluid and Electrolytes>

<Complexity: Easy>

3. A patient with severe vomiting and diarrhea presents with a 3 kg weight loss, a sodium level of 128 mEq/L, and a serum osmolarity of 260 mOsm/kg. This patient can be described as having:

- A. Hypervolemic hypotonic hyponatremia
- B. Euvolemic hypotonic hyponatremia
- C. Hypovolemic hypotonic hyponatremia
- D. Hypovolemic isotonic hyponatremia

<Answer: C>

<Subject: Chapter 2>

<A-Head: Management of Electrolyte Disorders>

<Complexity: Moderate>

4. Which of the following is likely to cause hypokalemia?

- A. Renal insufficiency
- B. Loop diuretic therapy
- C. Severe burns

D. Hemolysis

<Answer: B>

<Subject: Chapter 2>

<A-Head: Management of Electrolyte Disorders>

<Complexity: Moderate>

5. Which of the following occurs during acute illness, trauma, or inflammation?

- A. Negative acute-phase proteins increase and positive acute-phase proteins decrease
- B. Negative acute-phase proteins decrease and positive acute-phase proteins increase
- C. Both positive and negative acute-phase proteins increase
- D. Both positive and negative acute-phase proteins decrease

<Answer: B>

<Subject: Chapter 2>

<A-Head: Protein Assessment>

<Complexity: Easy>

6. A 25-year-old male prisoner is hospitalized after a 6-week hunger strike. He demonstrates subcutaneous fat loss and skeletal muscle wasting but he has normal serum albumin concentration. Inadequate intake of which dietary component best accounts for this presentation?

- A. Protein
- B. Carnitine
- C. Energy
- D. Fiber

<Answer: C>

<Subject: Chapter 2>

<A-Head: Protein Assessment>

<Complexity: Moderate>

7. A severe earthquake occurs, resulting in a building collapse that traps a person, who is uninjured, in the building. There is adequate bottled water and large quantities of enriched white bread, but minimal other food. After several weeks, the person is rescued and is found to have edema and muscle wasting. The edema and muscle wasting are most likely due to:

- A. Refeeding syndrome
- B. Pellagra
- C. Wet beriberi
- D. Kwashiorkor

<Answer: D>

<Subject: Chapter 2>

<A-Head: Protein Assessment>

<Complexity: Moderate>

8. A malnourished patient presents with dehydration. Intravenous fluids that contain water, sodium, and glucose are initiated. Which of the below nutrients would it be important to include in the first administration of these intravenous fluids?

- A. Folate
- B. Vitamin C
- C. Vitamin D
- D. Thiamine

<Answer: D>

<Subject: Chapter 2>

<A-Head: Fluid and Electrolytes>

<Complexity: Moderate>

9. Physiologic correction of metabolic alkalosis typically involves which mechanism?

- A. Hyperventilation to exhale carbon dioxide
- B. Vomiting to release gastric acid
- C. Urinary excretion to eliminate bicarbonate
- D. Fever to release excess fluid

<Answer: C>

<Subject: Chapter 2>

<A-Head: Acid-Base Disorders>

<Complexity: Easy>

10. A patient is admitted to the ICU with respiratory alkalosis. Which of the following best represents his blood gas results?

- A. ↓PCO₂, ↓pH
- B. ↑PCO₂, ↑pH
- C. ↓PCO₂, ↑pH
- D. ↑PCO₂, ↓pH

<Answer: C>

<Subject: Chapter 2>

<A-Head: Acid-Base Disorders>

<Complexity: Easy>

11. A 25-year-old woman who is an avid runner develops decreased endurance, pale skin, and fatigue and notices difficulty in concentration. Assessment of which nutrient would most likely reveal the cause of her symptoms?

- A. 25-OH vitamin D
- B. Iron
- C. Zinc
- D. Vitamin B12

<Answer: B>

<Subject: Chapter 2>

<A-Head: Interpretation of Anemia>

<Complexity: Easy>

12. A 25-year-old woman who is an avid runner develops decreased endurance, pale skin, and fatigue and notices difficulty in concentration. Which of the below tests could best help identify her problem?

- A. 25-OH-vitamin D concentration
- B. Hematocrit
- C. Clotting time
- D. Liver function tests

<Answer: B>

<Subject: Chapter 2>

<A-Head: Interpretation of Anemia>

<Complexity: Moderate>

13. Macrocytic anemia can be caused by a deficiency of:

- A. Iron
- B. Vitamin B12
- C. Folate
- D. Both B and C

<Answer: D>

<Subject: Chapter 2>

<A-Head: Hematology>

<Complexity: Easy>

14. In a previously healthy well-nourished person, a negative folate balance induced by complete dietary folate deficiency over a few days will most likely be manifest as:

- A. Red blood cell macrocytosis
- B. Low red blood cell folate
- C. Low plasma folate
- D. Elevated red blood cell vitamin B12

<Answer: B>

<Subject: Chapter 2>

<A-Head: Interpretation of Anemia>

<Complexity: Difficult>

15. A patient develops anemia due to copper deficiency. Six months ago he underwent resection of a part of his GI system due to cancer. The part of the GI system that was removed was most likely his:

A. Tongue

B. Gallbladder

C. Pancreas

D. Small intestine

<Answer: D>

<Subject: Chapter 2>

<A-Head: Hematology>

<Complexity: Difficult>

16. Which of the following altered biochemical indices are likely to occur concurrently?

A. Decreased C reactive protein with increased serum prealbumin

B. Decreased ferritin with increased transferrin

C. Decreased ceruloplasmin with increased serum albumin

D. Decreased potassium with increased magnesium

<Answer: B>

<Subject: Chapter 2>

<A-Head: Interpretation of Anemia>

<Complexity: Difficult>

True/False

1. Hyponatremia is the most common electrolyte disorder found in the hospital setting.

<Answer: True>

<Subject: Chapter 2>

<A-Head: Management of Electrolyte Disorders>

<Complexity: Easy>

2. Ionized calcium is preferred over total serum calcium in the acute care setting since hypoalbuminemia impacts total serum calcium but has less of an impact on ionized calcium.

<Answer: True>

<Subject: Chapter 2>

<A-Head: Management of Electrolyte Disorders>

<Complexity: Easy>

3. Potassium plays the most critical role in fluid balance.

<Answer: False>

<Subject: Chapter 2>

<A-Head: Management of Electrolyte Disorders>

<Complexity: Moderate>

4. The laboratory values that can become abnormal in patients with acid-base abnormalities are chloride, bicarbonate, pCO₂, pO₂, O₂ saturation, and pH.

<Answer: True>

<Subject: Chapter 2>

<A-Head: Acid-Base Disorders>

<Complexity: Easy>

5. Older persons are recommended to consume a proportion of vitamin B12 in the crystalline form.

<Answer: True>

<Subject: Chapter 2>

<A-Head: Fluid and Electrolyte Disorders>

<Complexity: Easy>

6. Like most supplements, synthetic folate is less bioavailable than food sources of folate.

<Answer: False>

<Subject: Chapter 2>

<A-Head: Interpretation of Anemia>

<Complexity: Easy>

Short Answer

1. How can hemodilution and hemoconcentration alter a patient's laboratory values?

<Answer: Hemodilution during extreme edema will decrease serum sodium levels, providing a false hyponatremia. In addition, during pregnancy, an increase in total cell volume and plasma volume, to a larger extent, can cause hemodilution and create "artificial anemia.">

<Subject: Chapter 2>

<A-Head: Fluid and Electrolyte Disorders>

<Complexity: Moderate>

2. What electrolytes are important to monitor in a patient at risk of refeeding syndrome?

<Answer: Phosphorus, magnesium, potassium, thiamin, and sodium levels.>

<Subject: Chapter 2>

<A-Head: Fluid and Electrolytes>

<Complexity: Easy>

3. Why is hemoglobin A1c a better indicator of risk of diabetes than fasting blood glucose?

<Answer: Fasting blood glucose measures the short-term level of blood glucose in the blood, which can be influenced by daily fluctuations, exercise, diet, and other factors. In contrast, hemoglobin A1c indicates the average blood glucose levels of a patient over three months, the half-life of red blood cells, making HbA1c a better long-term measure of glycemic control in patients with and without diabetes.>

<Subject: Chapter 2>

<A-Head: Endocrine Function: Glucose and Glycosylated Hemoglobin>

<Complexity: Easy>

4. Identify the expected albumin and prealbumin levels (low or normal) in the following clinical scenarios.

<Answer:

Scenario	Albumin	Prealbumin
Individual in good health	Normal	Normal
Woman at 30 weeks' gestation	Low due to hemodilution	Normal
Critically ill individual	Low due to critical illness	Low due to critical illness
Individual s/p hip replacement post-operative day 15 in rehab	Low due to inflammation and long half-life	Normal or almost normal due to shorter half-life
Individual with end stage liver disease and edema	Low due to compromised liver synthetic function	Low due to compromised liver synthetic function>

<Subject: Chapter 2>

<A-Head: Protein Assessment>

<Complexity: Difficult>

5. Outline reasons that an individual may present with following biochemical profiles:

High BUN/high Creatinine

High BUN/normal Creatinine

Normal BUN/high Creatinine

Answer:

Blood Urea Nitrogen	Creatinine	Cause
High	High	Renal failure
High	Normal	Dehydration, protein energy malnutrition, excessive protein intake, GI bleeding,

		catabolism
Normal	High	Muscle wasting, steroid administration, acute tubular necrosis, low protein intake, severe liver disease>

<Subject: Chapter 2>

<A-Head: Protein Assessment>

Biochemical Profile	Type of Anemia
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<Complexity: Moderate>

6. In a 24-hour urine sample collected for nitrogen balance, the urine urea nitrogen (UUN) is 15, and the total protein intake is 98 grams. Calculate the nitrogen balance and determine if the patient is in positive or negative nitrogen balance.

<Answer:

- N balance = $\text{g N in} - (\text{UUN g} / 0.85 + 2)$
- Nitrogen In = $98 \text{ g pro} \times 1 \text{ g N} / 6.25 \text{ pro} = 15.7 \text{ g nitrogen}$
- N balance = $15.7 - [(15 / 0.85) + 2]$
 $15.7 - [17.64 + 2] = 15.7 - 19.6 = -3.9 \text{ g}$
- Negative nitrogen balance>

<Subject: Chapter 2>

<A-Head: Protein Assessment>

<Complexity: Difficult>

7. Discuss the role of aspartate transaminase (AST) in the evaluation of liver and heart disease.

<Answer: Elevated AST values can be found in both liver disease and heart disease. An increase in AST is directly correlated to the number of cells affected by the injury, with levels peaking about 8 hours after cell injury. AST typically rises within 6 to 10 hours, peaking at 12 to 48 hours, and then returning to normal levels in 3 to 7 days unless another cardiac injury occurs. Therefore, AST levels are often evaluated to estimate the time of myocardial infarction. In liver disease, high AST levels are common. In most types of liver diseases, ALT (alanine transaminase) levels are often higher than AST except with alcoholic hepatitis, cirrhosis, and heart muscle injury, where AST tends to be higher than ALT.>

<Subject: Chapter 2>

<A-Head: Enzymes>

<Complexity: Moderate>

8. Identify the type of anemia associated with each biochemical profile.

<Answer:

↓ Hgb ↓ Hct ↓ MCV ↑ RDW	Iron deficiency anemia
↓Hgb ↓Hct ↑ MCV ↑ RDW	Folate/vitamin B12 deficient anemia
↓Hgb ↓Hct normal MCV ↑ RDW	Iron deficiency and folate/vitamin B12 deficient anemia
↓Hgb ↓Hct ↓ MCV normal RDW	Anemia of inflammation and chronic disease>

<Subject:
Chapter 2>
<A-Head:
Interpretatio
n of

Anemia>

<Complexity: Difficult>