Student Name_____ Date_____

Fluids and Electrolytes

chapter 22

Answer Key: Textbook page references are provided as a guide for answering these questions. A complete answer key was provided for your instructor.

FLUID AND PARTICLE MOVEMENT

Objectives

- List, describe, and compare the body fluid compartments.
- Discuss active and passive transport processes, and give two examples of each.

1. a. Identify the body fluid compartments in the body. *(661)* _____

_____

_____

b. Most of the body fluid in an adult is located in the _____compartment. *(661)*

2. What is the relationship of body weight to fluid? *(660)* _____

_____

_____

3. For the following types of fluids, identify the how the fluid will move when administered to the patient intravenously. *(664)*

a. Hypertonic solution: _____

b. Hypotonic solution:_____

4. Provide examples for each of the following processes in the body. *(664-665)*

a. Diffusion:_____

_____

b. Filtration:_____

_____

c. Osmosis: _____

_____

d. Active transport: _____

_____

5. The minimum hourly urinary output is _____, and the minimum daily output _____. *(662)*

ELECTROLYTES

Objectives

- Discuss the role of specific electrolytes in maintaining homeostasis.
- Describe the cause and effect of deficits and excesses of sodium, potassium, chloride, calcium, magnesium, phosphorus, and bicarbonate.

6. a. The major extracellular electrolyte is _____. *(665)*

b. The major intracellular electrolyte is _____. *(665)*

7. Identify the most common signs and symptoms of hyponatremia, and nursing interventions for the imbalance. *(666)*

_____

_____

8. Identify the most common signs and symptoms of hypokalemia, and nursing interventions for the imbalance. *(668)*

_____

_____

9. What are the most serious problems associated with hyperkalemia, and what are the nursing interventions for the imbalance? *(669)*

_____

_____

10. The role of calcium in the body is the following: *(669-670)* _____

_____

_____

11. a. Identify the most common signs and symptoms of hypocalcemia, and the nursing interventions for the imbalance. ***(670-671)***

_____

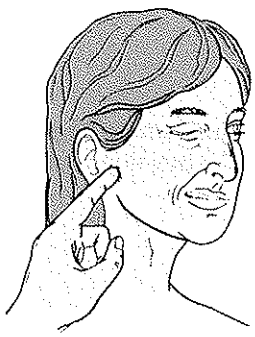
_____

b. In the illustrations, what assessments are being performed to determine the presence of this imbalance? ***(670-671)***

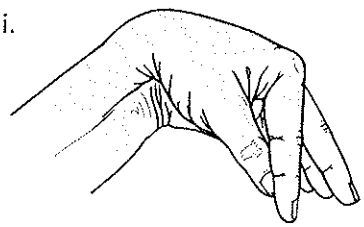
i. _____

ii. _____

i.



ii.



12. Identify possible causes of hypomagnesemia, its common signs and symptoms, and nursing interventions for the imbalance. ***(672)***

_____

_____

13. For the following laboratory results, identify the electrolyte imbalance.

a. Serum sodium 127 mEq/L: ***(665)*** _____

b. Serum potassium 5.6 mEq/L: ***(666)*** _____

c. Serum calcium 3.8 mEq/L: ***(669)*** _____

d. Serum magnesium 2.7 mEq/L: ***(672)*** _____

14. Select all of the following that can contribute to hypokalemia. *(668)*
    a. Vomiting _____
    b. Diarrhea _____
    c. Diuretic use _____
    d. Metabolic acidosis _____
    e. Chemotherapy _____
    f. Deficiency of vitamin D _____
    g. Thyroid surgery _____

Multiple Choice

15. The patient is experiencing hyperkalemia. The nurse anticipates that the treatment will include: *(669)*
    1. intravenous (IV) calcium.
    2. fluid restrictions.
    3. foods high in potassium.
    4. administration of diuretics.

16. Following an auto accident and a significant hemorrhage, the patient was given a large infusion of citrated blood. The patient is assessed for the development of: *(671)*
    1. urinary retention.
    2. poor skin turgor.
    3. increased blood pressure.
    4. positive Chvostek's sign.

17. Good food sources for both calcium and potassium are: *(667, 670)*
    1. meats.
    2. cranberries.
    3. whole grains.
    4. green, leafy vegetables.

ACID-BASE

Objectives

- Differentiate between the roles of the buffers, the lungs, and the kidneys in maintenance of acid-base balance.
- Compare and contrast the four major types of acid-base imbalances.

18. The normal pH range of the blood is _____. *(673)*

19. a. In determining acid-base balance, the base substance that increases or decreases in the blood is _____. *(673-674)*

    b. The acid substance is _____. *(673-674)*

    c. The ratio of these two substances is _____. *(673-674)*

20. What are the three body systems that regulate acid-base balance in the body? *(673-674)* _____

_____

_____

21. a. If carbonic acid increases in the blood, the pH will _____. *(674)*

    b. The respiratory system will respond by _____. *(674)*

22. If the pH of the blood increases, the kidneys will respond by _____. *(674)*

Multiple Choice

23. The patient has experienced a prolonged episode of diarrhea. The nurse is observing the patient for signs of: *(676)*
    1. metabolic acidosis.
    2. metabolic alkalosis.
    3. respiratory acidosis.
    4. respiratory alkalosis.

24. The patient has had emphysema for a number of years. Which of the following arterial blood gas values indicates that the patient is in respiratory acidosis? *(675)*
    1. pH 7.35, $Paco_2$ 40, HCO_3 22
    2. pH 7.40, $Paco_2$ 45, HCO_3 30
    3. pH 7.30, $Paco_2$ 50, HCO_3 24
    4. pH 7.48, $Paco_2$ 55, HCO_3 18

25. While in the delivery room with his wife, the father-to-be begins to develop an anxiety reaction and lightheadedness. Nursing intervention to prevent respiratory alkalosis is: *(676)*
    1. lay him down.
    2. provide nasal oxygen.
    3. have him breathe into a paper bag.
    4. have him cough and deep-breathe.

26. A child has gotten into the medicine cabinet in the home and ingested the remaining contents of an aspirin bottle. The problem that may occur as a result of this ingestion is: *(676)*
    1. metabolic acidosis.
    2. metabolic alkalosis.
    3. respiratory acidosis.
    4. respiratory alkalosis

27. The patient has had continuous gastric suction. The nurse suspects a specific acid-base imbalance that can occur with this treatment. This is confirmed by the following findings: *(677)*
    1. pH elevated, $Paco_2$ normal, and HCO_3 elevated.
    2. pH elevated, $Paco_2$ elevated, and HCO_3 decreased.
    3. pH decreased, $Paco_2$ decreased, and HCO_3 decreased.
    4. pH decreased, $Paco_2$ normal, and HCO_3 decreased.

NURSING

Objectives

- Discuss the role of the nursing process for fluid, electrolyte, and acid-base balances.
- Discuss how the very young, the very old, and the obese patient are at risk for fluid volume deficit.

28. How does body fluid change as an individual ages and grows? *(660-661)*

29. Identify at least two considerations for the older adult patient regarding fluid and electrolyte and acid-base balance. *(661)*

30. The nurse is monitoring the patient's intake and output (I&O). What should be counted as part of the output? *(662)*

31. What are the signs and symptoms of respiratory acidosis? *(675)*

32. The nurse anticipates that the treatment for respiratory acidosis will include the following: *(675)*

33. Identify possible causes of and interventions for metabolic acidosis and alkalosis. *(676-677)*

34. Identify possible nursing diagnoses and outcomes for patients experiencing fluid, electrolyte, or acid-base imbalances. *(677)*

CHAPTER 22

OPEN BOOK QUIZ

Student Name _____

Fluids and Electrolytes

1. Explain the correlation between water content and fat content among individuals. (See page 665 in your textbook.)
2. What is the difference between the *intracellular* and *extracellular* fluid compartments in the body? (See page 666 in your textbook.)
3. Describe the difference between *passive* and *active* transport in cells. (See page 668 in your textbook.)
4. How are *diffusion* and *filtration* similar? How are they different? (See page 668 in your textbook.)
5. What are the signs and symptoms of *hyponatremia*? (See page 671 in your textbook.)
6. List the six causes of *hyperkalemia.* (See page 673 in your textbook.)
7. What is the normal blood level of calcium and where is most of it concentrated in the body? (See page 674 in your textbook.)
8. What is the correlation between the amount of magnesium and the amount of potassium excreted? (See page 677 in your textbook.)
9. Name the two general types of disturbances that can cause a pH imbalance. (See page 678 in your textbook.)
10. How do the kidneys cope with a pH imbalance? (See page 679 in your textbook.)