Clayton: Basic Pharmacology for Nurses, 15th Edition

Chapter 2: Principles of Drug Action and Drug Interactions

Test Bank

MULTIPLE CHOICE

1. The nurse assesses hives in a patient started on a new medication. What is the nurse's best action?
   A. Notify physician of allergic reaction.
   B. Notify physician of idiosyncratic reaction.
   C. Notify physician of potential teratogenicity.
   D. Notify physician of potential tolerance.

   ANS: A

	Feedback
A	Allergic reactions are a hypersensitivity and manifest with hives and/or urticaria and are easily identified.
B	An idiosyncratic reaction occurs when something unusual or abnormal happens when a drug is first administered.
C	A teratogenic reaction refers to the occurrence of birth defects related to administration of the drug.
D	Tolerance refers to the body's requirement for increasing dosages to achieve the same effects that a lower dose once did.

   DIF: Cognitive Level: Comprehension REF: 21
   TOP: Nursing Process Step: Assessment
   MSC: NCLEX Client Needs Category: Physiological Integrity

2. The nurse administers an initial dose of a steroid to a patient with asthma. A half hour after administration, the nurse finds the patient agitated and stating that "everyone is out to get me." What is the term for this unusual reaction?
   A. Desired action
   B. Adverse effect
   C. Idiosyncratic reaction
   D. Allergic reaction

   ANS: C

	Feedback
A	Desired actions are expected responses to a medication.
B	Adverse effects are reactions that occur in another system of the body; they are usually predictable.
C	Idiosyncratic reactions are unusual, abnormal reactions that occur when a drug is first administered. Patients typically exhibit an overresponsiveness to a

	medication related to diminished metabolism. These reactions are believed to be related to genetic enzyme deficiencies.
D	Allergic reactions appear after repeated medication dosages

DIF: Cognitive Level: Comprehension REF: 21
TOP: Nursing Process Step: Evaluation
MSC: NCLEX Client Needs Category: Physiological Integrity

3. What is the definition of cumulative effect of a drug?
   A. Drug toxicity related to overmedication
   B. Drug buildup related to decreased metabolism
   C. The inability to control the ingestion of drugs
   D. The need for higher dosage to produce the same effect as previous lower dosages

   ANS: B

	Feedback
A	Toxicity occurs when adverse effects are severe.
B	Cumulative effects are related to diminished metabolism or excretion of a drug that causes it to accumulate. Cumulative effects can lead to drug toxicity.
C	Inability to control the ingestion of drugs is drug dependence.
D	The need for higher dosage to produce the same effect as previous lower dosages is the definition of tolerance.

t
DIF: Cognitive Level: Knowledge REF: 23
TOP: Nursing Process Step: Assessment
MSC: NCLEX Client Needs Category: Physiological Integrity

4. Which best describes when drug interactions occur?
   A. On administration of toxic dosages of a drug
   B. On an increase in the pharmacodynamics of bound drugs
   C. On the alteration of the effect of one drug by another drug
   D. On increase of drug excretion

   ANS: C

	Feedback
A	Toxicity of one drug may or may not affect the metabolism of another one.
B	Drug interactions may result from either increased or decreased pharmacodynamics.
C	Drug interactions may be characterized by an increase or decrease in the effectiveness of one or both of the drugs.
D	Drug interactions may result from either increased or decreased excretion.

DIF: Cognitive Level: Comprehension REF: 23
TOP: Nursing Process Step: Assessment
MSC: NCLEX Client Needs Category: Physiological Integrity

5. What occurs when two drugs compete for the same receptor site, resulting in increased activity of the first drug?
   A. Desired action
   B. Synergistic effect
   C. Carcinogenicity
   D. Displacement

   ANS: D

	Feedback
A	An expected response of a drug is the desired action.
B	A synergistic effect is the effect of two drugs being greater than the effect of each chemical individually, or the sum of the individual effects.
C	Carcinogenicity is the ability of a drug to cause cells to mutate and become cancerous.
D	The displacement of the first drug from receptor sites by a second drug increases the amount of the first drug because more unbound drug is available.

   DIF: Cognitive Level: Comprehension REF: 23-24
   TOP: Nursing Process Step: Implementation
   MSC: NCLEX Client Needs Category: Physiological Integrity

6. What do drug blood levels indicate?
   A. Confirm if the patient is taking a generic form of a drug
   B. Determine if the patient has sufficient body fat to metabolize the drug
   C. Verify if the patient is taking someone else's medications
   D. Determine if the amount of drug in the body is in a therapeutic range

   ANS: D

	Feedback
A	Generic drugs do not necessarily produce a different drug blood level than proprietary medications.
B	Body fat is not measured by drug blood levels.
C	Drug blood levels only measure the amount of drug in the body; they do not determine the source of the medication.
D	The amount of drug present may vary over time and the blood level must remain in a therapeutic range in order to obtain the desired result.

   DIF: Cognitive Level: Comprehension REF: 20
   TOP: Nursing Process Step: Evaluation
   MSC: NCLEX Client Needs Category: Physiological Integrity

7. What is the process by which a drug is transported by circulating body fluids to receptor sites?
   A. Osmosis

B. Distribution
C. Absorption
D. Biotransformation

ANS: B

	Feedback
A	Osmosis is the process of moving solution across a semipermeable membrane to equalize the dilution on each side.
B	Distribution refers to the ways in which drugs are transported by the circulating body fluids to the sites of action (receptors), metabolism, and excretion.
C	Absorption is the process by which a drug is transferred from its site of entry into the body to the circulating fluids for distribution.
D	Biotransformation, also called metabolism, is the process by which the body inactivates drugs.

DIF: Cognitive Level: Comprehension REF: 18
TOP: Nursing Process Step: Planning
MSC: NCLEX Client Needs Category: Physiological Integrity

8. The nurse assesses which blood level to determine the amount of circulating medication in a patient?
A. Peak
B. Trough
C. Drug
D. Therapeutic

ANS: C

	Feedback
A	Incorrect A: Peak levels are only those drug blood levels that are at their maximum before metabolism starts to decrease the amount of circulating drug.
B	Trough levels are only those drug blood levels that are at their minimum when metabolism has decreased the amount of circulating drug and before an increase caused by a subsequent dose of the medication.
C	When a drug is circulating in the blood, a blood sample may be drawn and assayed to determine the amount of drug present; this is known as the drug blood level.
D	Therapeutic levels are only those within a prescribed range of blood levels determined to bring about effective action of the medication.

DIF: Cognitive Level: Comprehension REF: 20
TOP: Nursing Process Step: Evaluation
MSC: NCLEX Client Needs Category: Physiological Integrity

9. Which patient, when compared with the general population, would require a larger dose or more frequent administration of a drug to attain a therapeutic response?

A. A 29-year-old who has been diagnosed with kidney failure
B. A 35-year-old obese male who is being evaluated for an exercise program
C. A 52-year-old diagnosed with hypothyroidism and decreased metabolic rate
D. A 72-year-old with decreased circulatory status

ANS: B

	Feedback
A	An individual with kidney failure would require less medication due to decreased excretory ability.
B	An obese individual would require a larger dose of a drug to attain a therapeutic response.
C	Individuals with decreased metabolic rate would metabolize drugs more slowly and require smaller doses or less frequent administration
D	Individuals with decreased circulation would require less medication.

DIF: Cognitive Level: Application REF: 22
TOP: Nursing Process Step: Assessment
MSC: NCLEX Client Needs Category: Physiological Integrity

10. The nurse administers 50 mg of a drug at 6:00 AM that has a half-life of 8 hours. What time will it be when 25 mg of the drug has been eliminated from the body?
A. 8:00 AM
B. 11:00 AM
C. 2:00 PM
D. 6:00 PM

ANS: C

	Feedback
A	8:00 AM is 2 hours after administration; the half-life is 8 hours.
B	11:00 AM is 4 hours after administration; the half-life is 8 hours.
C	Fifty percent of the medication, or 25 mg, will be eliminated in 8 hours, or at 2:00 PM.
D	6:00 PM is 12 hours after administration; the half-life is 8 hours.

DIF: Cognitive Level: Application REF: 20
TOP: Nursing Process Step: Evaluation
MSC: NCLEX Client Needs Category: Physiological Integrity

11. What will the nurse need to determine first in order to mix two drugs in the same syringe?
A. Absorption rate of the drugs
B. Compatibility of the drugs
C. Drug blood level of each drug
D. Medication adverse effects

ANS: B

	Feedback
A	Knowledge of absorption is important but not in order to mix drugs.
B	In order to mix two drugs, compatibility is determined so there is no deterioration when the drugs are mixed in the same syringe.
C	Drug level does not indicate if it is acceptable to mix medications in the same syringe.
D	Adverse effects are important for the nurse to know, but not in order to mix drugs.

DIF: Cognitive Level: Application REF: 24
TOP: Nursing Process Step: Implementation
MSC: NCLEX Client Needs Category: Physiological Integrity

12. A patient developed hives and itching after receiving a drug for the first time. Which instruction by the nurse is accurate?
    A. Stop the medication and encourage the patient to wear a medical alert bracelet that explains the allergy.
    B. Explain to the patient that these are signs and symptoms of an anaphylactic reaction.
    C. Emphasize to the patient the importance to inform medical personnel that in the future a lower dosage of this drug is necessary.
    D. Instruct the patient that it would be safe to take the drug again because this instance was a mild reaction.

ANS: A

	Feedback
A	This initial allergic reaction is mild, and the patient is more likely to have an anaphylactic reaction at the next exposure; a medical alert bracelet is necessary to explain the reaction.
B	Signs and symptoms of an anaphylactic reaction are respiratory distress and cardiovascular collapse.
C	A more severe reaction will occur at the next exposure, and the patient should not receive the drug again.
D	This mild allergic reaction is a warning not to take the drug again because, upon the next exposure to the drug, the patient is more likely to have an anaphylactic reaction.

DIF: Cognitive Level: Application REF: 21-22
TOP: Nursing Process Step: Implementation
MSC: NCLEX Client Needs Category: Physiological Integrity

13. When obtaining a patient's health history, which assessment data would the nurse identify as having the most effect on drug metabolism?
    A. History of liver disease

B. Intake of a vegetarian diet
C. Sedentary lifestyle
D. Teacher as an occupation

ANS: A

	Feedback
A	Liver enzyme systems are the primary site for metabolism of drugs.
B	Intake of a vegetarian diet may affect absorption but not metabolism.
C	Sedentary lifestyle does not affect metabolism the most.
D	Occupations could affect metabolism (exposure to environmental pollutants), but this is not the most significant effect on metabolism.

DIF: Cognitive Level: Application REF: 19
TOP: Nursing Process Step: Assessment
MSC: NCLEX Client Needs Category: Physiological Integrity

MULTIPLE RESPONSE

1. Which statements about liberation of drugs are true? (Select all that apply.)
   A. A drug must be dissolved in body fluids before it can be absorbed into body tissues.
   B. A solid drug taken orally must disintegrate and dissolve in GI fluids to allow for absorption into the bloodstream for transport to the site of action.
   C. The process of converting the drug into a soluble form can be controlled to a certain degree by the dosage form.
   D. Converting the drug to a soluble form can be influenced by administering the drug with or without food in the patient's stomach.
   E. Elixirs take longer to be liberated from the dosage form.

   ANS: A, B, C, D

	Feedback
Correct	Regardless of the route of administration, a drug must be dissolved in body fluids before it can be absorbed into body tissues. Before a solid drug taken orally can be absorbed into the bloodstream for transport to the site of action, it must disintegrate and dissolve in the GI fluids and be transported across the stomach or intestinal lining into the blood. The process of converting a drug into a soluble form can be partially controlled by the pharmaceutical dosage form used (e.g., solution, suspension, capsules, and tablets with various coatings). The conversion process can also be influenced by administering the drug with or without food in the patient's stomach.
Incorrect	Elixirs are already drugs dissolved in a liquid and do not need to be liberated from the dosage form.

DIF: Cognitive Level: Comprehension REF: 18
TOP: Nursing Process Step: Implementation
MSC: NCLEX Client Needs Category: Physiological Integrity

2. Which are routes of drug excretion? (Select all that apply.)
   A. Gastrointestinal (GI) tract; feces
   B. Genitourinary (GU) tract; urine
   C. Lymphatic system
   D. Circulatory system; blood/plasma
   E. Respiratory system; exhalation

   ANS: A, B, E

	Feedback
Correct	The GI system is a primary route for drug excretion The GU system does function in the excretion of drugs. The respiratory system does function in the excretion of drugs.
Incorrect	The lymphatic system is involved with drug distribution, not drug excretion. The circulatory system is involved with drug distribution, not drug excretion.

DIF: Cognitive Level: Knowledge REF: 19
TOP: Nursing Process Step: Assessment
MSC: NCLEX Client Needs Category: Physiological Integrity

3. Which routes enable drug absorption more rapidly than the subcutaneous route? (Select all that apply.)
   A. Intravenous route
   B. Intramuscular route
   C. Inhalation/sublingual
   D. Intradermal route
   E. Enteral route

   ANS: A, B, C

	Feedback
Correct	Intravenous route of administration enables drug absorption more rapidly than the subcutaneous route. Intramuscular route of administration enables drug absorption more rapidly due to greater blood flow per unit weight of muscle. Inhalation/sublingual route of administration enables drug absorption more rapidly than the subcutaneous route.
Incorrect	Intradermally administered drugs are absorbed more slowly due to the limited available blood supply in the dermis. Enterally administered drugs are absorbed more slowly due to the biotransformation process.

DIF: Cognitive Level: Comprehension REF: 18
TOP: Nursing Process Step: Evaluation
MSC: NCLEX Client Needs Category: Physiological Integrity

4. The nurse recognizes that which factors would contribute to digoxin toxicity in a 92-year-old patient? (Select all that apply.)
   A. Taking the medication with meals
   B. Prolonged half-life of the drug digoxin
   C. Impaired renal function
   D. Diminished mental capacity

   ANS: B, C

	Feedback
Correct	Impaired renal and hepatic function in older adults impairs metabolism and excretion of drugs, thus prolonging the half-life of a medication. Impaired renal and hepatic function in older adults impairs metabolism and excretion of drugs, thus prolonging the half-life of a medication.
Incorrect	Food would decrease the absorption of the drug. Diminished mental capacity does not contribute to drug toxicity unless it is due to administration errors.

   DIF: Cognitive Level: Application REF: 22
   TOP: Nursing Process Step: Assessment
   MSC: NCLEX Client Needs Category: Health Promotion and Maintenance

5. Which statements about variables that influence drug action are true? (Select all that apply.)
   A. An older adult will require increased dosage of a drug to achieve the same therapeutic effect as that seen in a younger person.
   B. Body weight can affect the therapeutic response of a medication.
   C. Chronic smokers may metabolize drugs more rapidly than nonsmokers.
   D. A patient's attitude and expectations affect the response to medication.
   E. Reduced circulation causes drugs to absorb more rapidly.

   ANS: B, C, D

	Feedback
Correct	Body weight can affect response to medications; typically, obese patients require an increase in dosage and underweight patients a decrease in dosage. Chronic smoking enhances metabolism of drugs. Attitudes and expectations play a major role in an individual's response to drugs.
Incorrect	Older adults require decreased dosages of drugs to achieve a therapeutic effect.

	Decreased circulation causes drugs to absorb more slowly.

DIF: Cognitive Level: Comprehension REF: 22
TOP: Nursing Process Step: Implementation
MSC: NCLEX Client Needs Category: Physiological Integrity

6. Which factors affect drug actions? (Select all that apply.)
   A. Teratogenicity
   B. Age
   C. Body weight
   D. Metabolic rate
   E. Illness

   ANS: B, C, D, E

	Feedback
Correct	Age may contribute to a variable response to a medication. Body weight may contribute to a variable response to a medication. Metabolic rate may contribute to a variable response to a medication. Illness may contribute to a variable response to a medication.
Incorrect	Teratogenicity does not contribute to a variable response to a medication.

DIF: Cognitive Level: Comprehension REF: 22
TOP: Nursing Process Step: Assessment
MSC: NCLEX Client Needs Category: Physiological Integrity