Abrams' Clinical Drug Therapy - Rationales for Nursing Practice 13th edition Frandsen Test Bank

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Test Generator Questions, Chapter 02: Basic Concepts and Processes

1. A client is administered an oral contraceptive. What is the process that occurs between the time the drug enters the body and the time it enters the bloodstream?
A. Absorption
B. Distribution
C. Metabolism
D. Excretion

Answer: A

Rationale: Absorption is the process that occurs from the time the drug enters the body to the time it enters the bloodstream to be circulated. Distribution involves the transport of drug molecules within the body. Metabolism is the method by which drugs are inactivated or biotransformed by the body. Excretion refers to elimination of a drug from the body.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 16

2. Which site of drug absorption is considered to have the largest surface area?
A. Rectum
B. Vagina
C. Eye
D. Lungs

Answer: D

Rationale: The lungs have the largest surface area for absorption of anesthetic gases and a few other drugs. The rectum absorbs the medication through the mucous membranes and has a smaller surface area than the lungs. The vagina absorbs the medication through the mucous membranes and has a smaller surface area than the lungs. The eye also has a smaller surface area than the lungs and absorbs the medication through the mucous membranes.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 16-17

3. An older adult client has an elevated serum creatinine level. This client is at **greatest** risk for which medication-related effect?
A. Impaired excretion
B. Increased absorption
C. Delayed gastric emptying
D. Idiosyncratic effects

Answer: A

Rationale: The elevated creatinine level indicates impaired kidney function, which inhibits excretion. It does not affect absorption, and has no effect on gastric emptying. Idiosyncratic effects are reactions that occur rarely and unpredictably among the population.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 18

4. What is the primary role of protein binding on drug action?
A. Increasing the medication's speed of action
B. Decreasing the medication's speed of action
C. Increasing the rate of the medication's excretion
D. Averting the risk of adverse effects posed by the medication

Answer: B

Rationale: Protein binding allows part of a drug to be stored and released as needed. Drugs that are highly bound to plasma proteins or stored extensively in other tissues have a long duration of action. Protein binding does not increase the speed of action or increase metabolism. Protein binding does decrease the speed of action by storing the drug to be released when needed.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 17

5. A patient is taking a medication that is metabolized by the CYP enzymes. Which medication inhibits several of the CYP enzymes?
A. Cisplatin
B. Acebutolol hydrochloride
C. Cimetidine
D. Dicloxacillin sodium

Answer: C

Rationale: Cimetidine is a gastric acid suppressor that inhibits several CYP enzymes and can greatly decrease drug metabolism. Cisplatin prevents DNA, RNA, and protein synthesis. Acebutolol hydrochloride is a $Beta_1$-selective

adrenergic blocking agent. Dicloxacillin sodium inhibits the final stage of bacterial cell wall synthesis.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 18

6. Which phrase accurately describes the concept of a medication's serum half-life?
A. The time required for IV medications to penetrate the brain tissue
B. The time needed for the serum level to fall by 50%
C. The safest margin to prevent toxicity
D. The dose adjustment that reduces the risk of adverse effects by one half

Answer: B

Rationale: Serum half-life is the time required for the serum concentration of a drug to decrease by 50%. Although many IV medications penetrate the brain tissue, this action does not describe the half-life. The safest margin to prevent toxicity depends on the rate of metabolism and excretion. The half-life of the medication is not indicative of the drug safety margin in the elderly.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 19

7. A client has increased intracranial pressure. Which diuretic would be the **most** appropriate for this client?
A. Metoprolol
B. Trandolapril
C. Vitamin K
D. Mannitol

Answer: D

Rationale: Mannitol is an osmotic diuretic that increases the osmolarity of plasma and pulls water out of the tissues into the bloodstream, relieved ICP. The other listed medications do not have this effect.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 21

8. Which factor accounts for the increased risk for drug reactions among clients aged 65 years and older?
A. Drugs more readily crossing the blood–brain barrier in older people

B. Physiologic changes affecting all pharmacokinetic processes
C. Increased drug-metabolizing enzymes in older people
D. Diminished immune response

Answer: B

Rationale: In older adults (65 years and older), physiologic changes may alter all pharmacokinetic processes. Although drugs crossing the blood–brain barrier affect drug reaction, this factor is important in all ages. Increased drug-metabolizing enzymes are key in all ages and do not relate to age variations. A diminished immune response is important in all ages and does not affect all medications.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Analyze
Client Needs: Health Promotion and Maintenance
Integrated Process: Nursing Process
Reference: p. 22

9. When considering the dosage requirement for a 6-feet (1.8-m) tall client who weighs 280 pounds (127 kg), which statement is accurate?
A. Dose will be higher than that required of a client who weighs 180 pounds (82 kg).
B. Dose will be lower than that required of a client who weighs 180 pounds (82 kg).
C. Dose will be similar to that required of a client who weighs 180 pounds (82 kg).
D. Dose will be more effective if given parenterally to a client who weighs more than 180 pounds (82 kg).

Answer: A

Rationale: In general, people heavier than average may need larger doses, provided their renal, hepatic, and cardiovascular functions are adequate. In this situation, route is not relevant.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 23

10. A client is experiencing a cough associated with an upper respiratory infection. Which oral medication will likely produce the quickest therapeutic effect?
A. A tablet
B. A liquid expectorant
C. A topical spray
D. A timed-release tablet

Answer: B

Rationale: Liquid medications are absorbed faster than tablets or capsules. Expectorants are liquid medications. A tablet is an oral medication that has a slower onset of action than a liquid medication. A topical spray can be sprayed to

the back of the throat and provides only a local effect. A timed-release tablet is an oral medication that has a slower onset and longer duration of action.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 16-17

11. Which drug(s) are formulated to be absorbed through the skin? Select all that apply.
A. lidocaine
B. hydrochlorothiazide
C. propranolol
D. nitroglycerin
E. fentanyl

Answer: A, D, E

Rationale: Some drugs are formulated in adhesive skin patches for absorption through the skin. Fentanyl and nitroglycerin are examples of drugs that are formulated in adhesive skin patch form to be absorbed through the skin. Propranolol and hydrochlorothiazide are administered orally, and lidocaine can be administered topically, which also involves absorption through the skin.
Question format: Multiple Select
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 16-17

12. What is the mechanism that allows mannitol to produce diuresis?
A. Competes with aldosterone for cellular receptor sites
B. Inhibits the reabsorption of sodium and chloride in the loop of Henle
C. Interferes with absorption of sodium ions across the distal renal tubule
D. Increases the osmolarity of plasma and pulls water out of the tissues into the bloodstream

Answer: D

Rationale: Mannitol is an osmotic diuretic that increases the osmolarity of plasma and pulls water out of the tissues into the bloodstream. It does not act on receptor sites. Furosemide is a loop diuretic that inhibits the reabsorption of sodium and chloride in the loop of Henle. Hydrochlorothiazide is associated with drug interference with absorption of sodium ions across the distal renal tubule. Spironolactone acts by competing with aldosterone for cellular receptor sites.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 21

13. What is the characteristic action of an agonist?
A. Agonists alter the normal processes of distribution and metabolism.
B. Agonists counteract the action of specific neurotransmitters.
C. Agonists block the action of specific neurotransmitters.
D. Agonists bind to receptors and cause a physiologic effect similar to naturally-occurring substances

Answer: D

Rationale: Agonists are drugs that produce effects similar to those produced by naturally occurring hormones, neurotransmitters, and other substances by activating (not blocking or counteracting) a receptor. Classification of a drug as an agonist does not denote a change to metabolism or distribution.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 20

14. What is the expected therapeutic outcome of the simultaneous administration of two medications with different sites or mechanisms of action?
A. The adverse effects of one of the drugs are nullified by the other drug.
B. The combined effects are greater than the effects of either one of the drugs alone.
C. One of the drugs enhances metabolism, while the other drug enhances either distribution or absorption.
D. Both drugs are toxic in isolation but therapeutic when administered together.

Answer: B

Rationale: Synergism occurs when two drugs with different sites or mechanisms of action produce greater effects when taken together. This does not mean that potential toxicity or adverse effects are "canceled out." The two drugs would not individually affect different aspects of pharmacokinetics.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Understand
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 22

15. When considering the half-life of naloxone, what are the implications for this medication therapy?
A. Repeated doses of naloxone will likely be necessary.
B. An increase in the dosage of naloxone will most likely be required.
C. A different antidote will be required as the serum level of naloxone decreases.
D. The antidote is unlikely to have a therapeutic effect on the client's symptoms.

Answer: A

Rationale: When an antidote is used, its half-life relative to the toxin's half-life must be considered. For example, the half-life of naloxone, a narcotic antagonist, is relatively short compared with the half-life of the longer-acting opioids such as methadone, and repeated doses may be needed to prevent recurrence of the toxic state. None of the remaining options present accurate information regarding the significance of naloxone's half-life.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 29

16. A client with a diagnosis of bipolar disorder has begun lithium therapy. What is the **primary** rationale for the nurse's instructions regarding the need for regular monitoring of the client's serum drug levels?
A. It is necessary to regularly test for blood–drug incompatibilities that may develop during treatment.
B. It is necessary to ensure that the client's drug levels are therapeutic but not toxic.
C. It is needed to determine if additional medications will be needed to potentiate the effects of lithium.
D. It is needed in order to confirm the client's adherence to the drug regimen.

Answer: B

Rationale: Measuring serum drug levels is useful when drugs with a narrow margin of safety are given, because their therapeutic doses are close to their toxic doses. This is the case during lithium therapy. Serum levels are not commonly taken to monitor adherence to treatment. Blood–drug incompatibilities are not a relevant consideration.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Analyze
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 19

17. A client in cardiovascular collapse requires pharmacological interventions. What route of administration is **most** likely appropriate?
A. Intravenous
B. Oral
C. Rectal
D. Topical

Answer: A

Rationale: For rapid drug action and response, the IV route is most effective because the drug is injected directly into the bloodstream. None of the other options deliver the medication directly into the bloodstream; thus, all other routes require additional steps to deliver the medication to the vascular system that is already compromised.

Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 21

18. What is the effect of a significant first-pass effect on the metabolism of a medication?
A. The medication must pass through the client's bloodstream several times in order to generate a therapeutic effect.
B. The medication must pass through the renal tubules and is excreted in large amounts.
C. The medication's effectiveness increases with each subsequent dose.
D. The medication is biotransformed extensively in the client's liver.

Answer: D

Rationale: Some drugs are extensively metabolized in the liver, with only part of a drug dose reaching the systemic circulation for distribution to sites of action. This is called the first-pass effect or presystemic metabolism. The first-pass effect is not related to renal function or the need to pass through the bloodstream multiple times.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 18

19. A nurse has administered a dose of a drug that is known to be highly protein bound. What are the implications of this characteristic?
A. The client must consume adequate protein in order to achieve a therapeutic effect.
B. The molecules of the drug that are bound to protein are inactive and do not affect body cells.
C. Increased levels of serum protein will increase the effect of the drug.
D. Each molecule of the drug must bind to a protein molecule to become effective.

Answer: B

Rationale: Drug molecules bound to plasma proteins are pharmacologically inactive because the large size of the complex prevents their leaving the bloodstream through the small openings in capillary walls and reaching their sites of action, metabolism, and excretion. Only the free or unbound portion of a drug acts on body cells. The client's protein intake or levels of protein are not normally relevant.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process

Reference: p. 17

20. A client tells the nurse, "I took my sleeping pill yesterday evening, but it didn't seem to work for me like it usually does." What education should the nurse review in teaching the client about variables that affect drug absorption? Select all that apply.
A. pH of stomach
B. blood flow to the site of administration
C. the presence of other drugs
D. route of administration
E. gender

Answer: A, B, C, D

Rationale: Numerous factors affect the rate and extent of drug absorption, including dosage form, route of administration, blood flow to the site of administration, GI function, stomach pH, the presence of food or other drugs, and other variables. Gender has an effect on pharmacokinetics in many cases, but would not be limited to one particular dose.
Question format: Multiple Select
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 16-17

21. The nurse is caring for a client who has just been diagnosed with liver failure. The nurse should modify the client's care to accommodate what change in pharmacokinetics?
A. impaired metabolism
B. increased excretion
C. impaired distribution
D. impaired absorption

Answer: A

Rationale: Hepatic disorders primarily impede metabolism. In later stages, all aspects of pharmacokinetics are affected, but this client has a recent diagnosis.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 24

22. A client has been taking an anti-inflammatory medication for several years and has gradually developed enzyme induction. The nurse should anticipate what change in the client's medication regimen?
A. The client may need larger doses to achieve therapeutic effect.
B. The client's 24-hour dosage should be divided into more frequent individual doses.
C. The client's medication should be promptly discontinued.

D. The client will require supplementary enzymes in order to achieve a therapeutic effect.

Answer: A

Rationale: Enzyme induction accelerates drug metabolism because larger amounts of the enzymes (and more binding sites) allow larger amounts of a drug to be metabolized during a given period. As a result, larger doses of the rapidly metabolized drug may be required to produce or maintain therapeutic effects. There is no obvious need to discontinue the medication. Supplementary enzymes do not negate this effect, nor will more frequent dosing.
Question format: Multiple Choice
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
Integrated Process: Nursing Process
Reference: p. 18

23. A client has presented to the emergency department in distress. It has been determined that the client is experiencing medication toxicity from an oral medication. The nurse should perform which action(s)? Select all that apply.
A. Establish intravenous access.
B. Protect and maintain the client's airway.
C. Administer antidotes as ordered.
D. Administer intravenous fluids to support cardiovascular status as ordered.
E. Administer ipecac to induce vomiting.

Answer: A, B, C, D

Rationale: Initial interventions for the treatment of toxicity include measures to support circulation, assessing ABCs (airway, breathing, circulation), and the use of antidotes, if appropriate. Ipecac-induced vomiting is no longer routinely used because of its minimal effectiveness and potential complications.
Question format: Multiple Select
Chapter 2: Basic Concepts and Processes
Cognitive Level: Apply
Client Needs: Safe, Effective Care Environment: Safety and Infection Control
Integrated Process: Nursing Process
Reference: p. 28-29