KarchÂ's Focus on Nursing Pharmacology 9th edition Tucker Test Bank

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1. The nurse is caring for a diverse group of clients. In which client should the nurse assess for an alteration in drug metabolism?
   A) a 35-year-old woman with cervical cancer
   B) a 41-year-old man with kidney stones
   C) a 50-year-old man with cirrhosis of the liver
   D) a 32-year-old woman with urosepsis

   ANS: C
   Feedback: The liver is the most important site of drug metabolism. If the liver is not functioning effectively, as in clients with cirrhosis, drugs will not metabolize normally so that toxic levels could develop unless dosage is reduced. A client with cervical cancer or kidney stones would not be expected to have altered ability to metabolize drugs so long as no liver damage existed. Infections such as urosepsis would not have a direct impact on metabolism.

   PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
   OBJ: 2
   NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
   TOP: Chapter 2 KEY: Integrated Process: Nursing Process
   BLM: Cognitive Level: Analyze NOT: Multiple Choice

2. A client presents to the emergency department with a drug level of 50 units/mL. The half-life of this drug is 1 hour. With this drug, concentrations above 25 units/mL are considered toxic, and no more drug is given. How long will it take for the blood level to reach the nontoxic range? Provide your answer measured in minutes.

   ANS:
   60 minutes
   Feedback: Half-life is the time required for the serum concentration of a drug to decrease by 50%. After 1 hour, the serum concentration would be 25 units/mL (50/2) if the body can properly metabolize and excrete the drug.

   PTS: 1 DIF: Difficult REF: Page 22, Pharmacokinetics | Page 27, Box 2.2
   OBJ: 3
   NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
   TOP: Chapter 2 KEY: Integrated Process: Nursing Process
   BLM: Cognitive Level: Apply NOT: Fill-in-the-Blank

3. A client has recently moved from Vermont to South Florida. The client presents to the clinic reporting “dizzy spells” and weakness. The client tells the nurse that they have been on the same antihypertensive drug for 6 years, with stable blood pressures and no adverse effects. The clinic nurse knows that one possible reason for the change in the effectiveness of the drug could be what?
   A) the impact of psychosocial stress associated with moving
   B) the accumulative effect of the drug if it has been taken for many years
   C) the impact of the warmer environment on the client’s physical status
   D) problems with client adherence with the drug regimen while on vacation

   ANS: C

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Feedback: Antihypertensive drugs work to decrease the blood pressure. When a client goes to a climate that is much warmer than usual, blood vessels dilate and the blood pressure falls. If a client is taking an antihypertensive drug and moves to a warmer climate, there is a chance that the client's blood pressure will drop too low, resulting in dizziness and feelings of weakness. Even mild dehydration could exacerbate these effects. Most antihypertensives are metabolized and excreted and do not accumulate in the body. Clients must adhere to their drug regimen on vacation, but this client is not on vacation. Psychosocial factors must be considered, but the client is describing a physiological response.

PTS: 1 DIF: Difficult
REF: Page 28, Factors Influencing Drug Effects | Page 28, Box 2.3
OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Analyze NOT: Multiple Choice

4. The nurse is providing medication teaching for a client. The nurse has asked the client to provide a complete list of medications taken to health care providers. Ensuring this list is complete will have what potential benefit for the client?
   A) reducing the client's spending on medications
   B) protecting the client from possible allergic reactions to medications
   C) reducing the client's likelihood of drug–drug interactions
   D) maintaining a therapeutic serum concentration of the new drug

   ANS: C
   Feedback: It is important that all health care providers have a complete list of the client's medications to avoid drug–drug interactions caused by one provider ordering a medication, unaware of another medication the client is taking that could interact with the new prescription. Informing the provider of all medications taken will not reduce costs of medications, which is best accomplished by requesting generic medications. Allergies should be disclosed to all health care providers as well, but this is not why it is important to provide a complete list of medications taken. Ensuring that the client's drug regimen is fully disclosed will not have direct effect on serum concentrations of the new drug.

   PTS: 1 DIF: Moderate
   REF: Page 28, Factors Influencing Drug Effects | Page 32, Box 2.5
   OBJ: 5
   NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
   TOP: Chapter 2 KEY: Integrated Process: Teaching/Learning
   BLM: Cognitive Level: Apply NOT: Multiple Choice

5. A client has been prescribed a medication that is known to be a drug agonist. This drug will have what effect?
   A) It will react with a receptor site on a cell preventing a reaction with another chemical on a different receptor site.
   B) The drug will interfere with the enzyme systems that act as catalyst for different chemical reactions.
   C) The drug will interact directly with receptor sites to cause the same activity that a natural chemical would cause at that site.
   D) It will react with receptor sites to block normal stimulation, producing no effect.

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ANS: C

Feedback: Agonists are drugs that produce effects similar to those produced by naturally occurring neurotransmitters, hormones, or other substances found in the body. Noncompetitive antagonists are drugs that react with some receptor sites preventing the reaction of another chemical with a different receptor site. Drug–enzyme interactions interfere with the enzyme systems that stimulate various chemical reactions.

PTS: 1 DIF: Moderate REF: Page 20, Pharmacodynamics
OBJ: 1
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Teaching/Learning
BLM: Cognitive Level: Understand NOT: Multiple Choice

6. A nurse is caring for a client who has been receiving a drug by the intramuscular route at a dose of 0.25 mg. After discharge, the client will be prescribed the same medication orally at a dose of 2.5 mg. What phenomenon should the nurse describe when explaining the reason for the increased dosage for the oral dose?
   A) passive diffusion
   B) active transport
   C) glomerular filtration
   D) first-pass effect

   ANS: D

   Feedback: The first-pass effect involves drugs that are absorbed from the small intestine directly into the portal venous system, which delivers the drug molecules to the liver. After reaching the liver, enzymes break the drug into metabolites, which may become active or may be deactivated and readily excreted from the body. A large percentage of the oral dose is usually destroyed and never reaches tissues. Oral dosages account for the phenomenon to ensure an appropriate amount of the drug in the body to produce a therapeutic action. Passive diffusion is the major process through which drugs are absorbed into the body. Active transport is a process that uses energy to actively move a molecule across a cell membrane and is often involved in drug excretion in the kidney. Glomerular filtration is the passage of water and water-soluble components from the plasma into the renal tubule.

   PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
   OBJ: 2
   NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
   TOP: Chapter 2 KEY: Integrated Process: Nursing Process
   BLM: Cognitive Level: Understand NOT: Multiple Choice

7. A client's unexpected response to a new medication has been attributed to characteristics of the client's genetic makeup. What area of study **best** explains this client's medication response?
   A) pharmacotherapeutics
   B) pharmacodynamics
   C) pharmacoeconomics
   D) pharmacogenomics

   ANS: D

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Feedback: Pharmacogenomics is the area of study that includes mapping of the human genome. In the future, medical care and drug regimens may be personally designed based on a client's unique genetic makeup. Pharmacotherapeutics is the branch of pharmacology that deals with the uses of drugs to treat, prevent, and diagnose disease. Pharmacodynamics involves how a drug affects the body. Pharmacoeconomics includes the costs involved in drug therapy.

PTS: 1 DIF: Easy REF: Page 28, Factors Influencing Drug Effects
OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

8. The serum lithium levels of a client diagnosed with bipolar disorder have risen to the minimum level required to have a therapeutic effect. What term is used to describe this situation?
   A) critical concentration
   B) dynamic equilibrium
   C) a stable half-life
   D) benefits of active transport

   ANS: A
   Feedback: A critical concentration of a drug must be present before a reaction occurs within the cells to bring about the desired therapeutic effect. A dynamic equilibrium is obtained from absorption of a drug from the site of drug entry, distribution to the active site, metabolism in the liver, and excretion from the body to have a critical concentration. Active transport is the process that uses energy to actively move a molecule across a cell membrane and is often involved in drug excretion in the kidney. The half-life of a drug affects the achievement and maintenance of a critical concentration, but this drug level is not the half-life itself.

   PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
   OBJ: 1
   NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
   TOP: Chapter 2 KEY: Integrated Process: Nursing Process
   BLM: Cognitive Level: Understand NOT: Multiple Choice

9. A nurse is caring for a client who is scheduled to receive three medications at the same time. What action should the nurse perform **first**?
   A) Perform hand hygiene before handling the medications.
   B) Consult a drug guide to check for interactions.
   C) Assess the client's knowledge of the medications.
   D) Identify the client by checking the armband and asking the client's name.

   ANS: B
   Feedback: A nurse should first consult a drug guide for interactions when two or more drugs are being given at the same time. After this review, the medication can be administered. The nurse will perform hand hygiene, check for client allergies, and ensure that the right client receives the medication by using two identifiers. It is important to assess clients' knowledge of their medications, but ensuring compatibility is a priority.

   PTS: 1 DIF: Moderate

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REF: Page 28, Factors Influencing Drug Effects | Page 32, Box 2.5
OBJ: 5
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Multiple Choice

10. The nurse is preparing to administer an intramuscular dose of meperidine to a client in pain. The nurse should identify what factor that will affect the absorption of the drug by this route?
A) perfusion of blood to the subcutaneous tissue
B) integrity of the client mucous membranes
C) environmental temperature
D) the amount of adipose tissue that the client has

ANS: C
Feedback: A cold environmental temperature can cause blood vessels to vasoconstrict and decreases absorption or in a hot environment, vasodilate and increase absorption of IM medications. Blood flow to the subcutaneous tissues interferes with subcutaneous injection. Intramuscular injections enter muscle, so the amount of adipose tissue that the client has will not have a direct effect on absorption. The condition of mucous membranes can interfere with sublingual (under the tongue) and buccal (in the cheek) administration of drugs.

PTS: 1 DIF: Moderate
REF: Page 28, Factors Influencing Drug Effects | Page 28, Box 2.3
OBJ: 2
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

11. The client is taking a drug that affects the body by increasing cellular activity. Where does this drug work on the cell?
A) receptor sites
B) cell membrane
C) Golgi body
D) endoplasmic reticulum

ANS: A
Feedback: Many drugs are thought to act at specific areas on cell membranes called receptor sites. After the receptor site is activated, this in turn activates the enzyme systems to produce certain effects, such as increased or decreased cellular activity, changes in cell membrane permeability, or alterations in cellular metabolism. Receptor sites are generally located on the outside of cells and allow the drug to bypass the cell membrane. The Golgi body and endoplasmic reticulum are not involved in this process.

PTS: 1 DIF: Moderate REF: Page 20, Pharmacodynamics
OBJ: 1
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

12. What physiologic processes contribute to the achievement of dynamic equilibrium when a nurse administers a drug? Select all that apply.
A) distribution to the site where the drug is active

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B) biotransformation
C) absorption from site where the drug enters the body
D) excretion from the body
E) interaction with other drugs

ANS: A, B, C, D
Feedback: The actual concentration that a drug reaches in the body results from a dynamic equilibrium involving several processes: absorption from the site of entry (can be from the muscle, the gastrointestinal [GI] tract if taken orally, of the subcutaneous tissue if given by that route), distribution to the active site, biotransformation (metabolism) in the liver, and excretion from the body. Interaction with other drugs is not part of the dynamic equilibrium.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 2
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Selection

13. A nurse is administering digoxin to a client. To administer medications so that the drug is as effective as possible, the nurse should **prioritize** what factor?
A) the client's preferences
B) the process of pharmacokinetics
C) educating the client about potential adverse effects
D) the client's culture and ethnicity

ANS: B
Feedback: When administering a drug, the nurse needs to consider the phases of pharmacokinetics so that the drug regimen can be made as effective as possible. The client should be educating about adverse effects, but this action does not directly influence effectiveness. Similarly, the nurse must always consider clients' preferences, culture, and ethnicity, but these variables are less significant than the broader process of pharmacokinetics.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 2
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

14. The processes involved in dynamic equilibrium are key elements in the nurse's ability to determine what?
A) dosage scheduling
B) amount of solution for mixing parenteral drugs
C) timing of other drugs the client is taking
D) how long the client has to take the drug

ANS: A
Feedback: These processes are key elements in determining the amount of drug (dose) and the frequency of dose repetition (scheduling) required to achieve the critical concentration for the desired length of time. The processes in dynamic equilibrium are not key elements in determining the amount of diluents for intramuscular (IM) drugs; they do not aid in the timing of the other drugs the client is taking or how long the client has to take the drug.

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PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 2
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

15. The nurse is assessing factors that may affect the absorption of a drug that the nurse will soon administer. What factor should the nurse **prioritize**?
A) the client's blood urea nitrogen and creatinine levels
B) the route of administration that has been prescribed
C) the client's liver enzyme levels
D) the date on which the client began taking the medication

ANS: B
Feedback: Drug absorption is influenced by the route of administration. IV administration is the fastest method; drug absorption is slower when given orally. Kidney function impacts excretion while liver function impacts metabolism. The length of time the client has been taking the drug has no appreciable effect on absorption.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 2
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Remember NOT: Multiple Choice

16. The nurse has administered a drug that is known to be lipid soluble. This drug's solubility will primarily affect what aspect of pharmacokinetics?
A) absorption of the drug
B) metabolism of the drug
C) excretion of the drug
D) distribution of the drug

ANS: D
Feedback: Factors that can affect distribution include the drug's lipid solubility and ionization and the perfusion of the reactive tissue. The lipid solubility of a drug does not influence absorption, metabolism, or excretion.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 2
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

17. A nurse has identified the half-life of a drug that will be administered to a client for the first time. The nursing drug guide states that the drug's half-life is 90 minutes. The nurse should identify what implication of this fact?
A) Ninety minutes after drug levels peak, there will be 50% of the peak level.
B) In 3 hours, there will be no detectable levels of the drug present in the client's body.
C) Drug levels will rise steadily after administration, reaching 50% of maximum concentration after 90 minutes.
D) Peak drug levels will be achieved 90 minutes after the drug is administered.

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ANS: A

Feedback: The half-life of a drug is the time it takes for the amount of drug in the body to decrease to half the peak level it previously achieved. In this case, 50% of peak levels will be achieved 90 minutes after the peak. Two half-life cycles of 90 minutes each (3 hours) would result in a concentration of 25% of the peak (50% of 50%).

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics | Page 27, Box 2.2
OBJ: 3
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Teaching/Learning
BLM: Cognitive Level: Analyze NOT: Multiple Choice

18. The client is taking a 2-mg dose of ropinirole XR. The drug has a half-life of 12 hours. In how many hours will 0.25 mg of this drug remains in the client's system?

ANS:
36 hours
36

Feedback: The half-life of a drug is the time it takes for the amount of drug in the body to decrease to half of the peak level it previously achieved. At 12 hours, there will be 1 mg of the drug available to the body. At 24 hours, there will be 0.5 mg; at 36 hours, there will be 0.25 mg; at 48 hours, there will be 0.125 mg; and at 60 hours, there will be 0.0625 mg.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics | Page 27, Box 2.2
OBJ: 3
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Analyze NOT: Fill-in-the-Blank

19. The client has been diagnosed with multiple sclerosis and is taking the drug interferon beta-1a. The client takes this drug by subcutaneous injection three times a week. The dosage is 44 mcg per injection. If the client takes an injection on Monday, how many micrograms of the drug would still be in the client's system when they take the next injection on Wednesday, assuming the half-life of the drug is 24 hours?

ANS:
11 mcg
11

Feedback: The half-life of a drug is the time it takes for the amount of drug in the body to decrease to one-half the peak level it previously achieved. On Tuesday, there would be 22 mcg remaining in the body. On Wednesday, 11 mcg would remain. At 12 hours before taking the next dose on Wednesday, there would be 16.5 mcg remaining. If the injection were not taken on Wednesday, 12 hours after the dose was due, there would be 5.5 mcg remaining.

PTS: 1 DIF: Difficult REF: Page 22, Pharmacokinetics | Page 27, Box 2.2
OBJ: 3
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Fill-in-the-Blank

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20. The client is a 6-year-old child who is taking 125 mg of amoxicillin every 6 hours. Assuming that the half-life of amoxicillin is 3 hours, approximately how much amoxicillin would be in the child's body at the time of the next administration of the drug?
A) 63 mg
B) 47 mg
C) 31 mg
D) 16 mg

ANS: C
Feedback: The half-life of a drug is the time it takes for the amount of drug in the body to decrease to one-half the peak level it previously achieved. There would be 62.5 mg at 3 hours after the original dose of amoxicillin. There would be 46.875 mg present $4\frac{1}{2}$ hours after the original dose. There would be 31.25 mg at 6 hours after the original dose. There would be 15.625 mg at $7\frac{1}{2}$ hours after the original dose.

PTS: 1 DIF: Difficult REF: Page 22, Pharmacokinetics | Page 27, Box 2.2
OBJ: 3
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Analyze NOT: Multiple Choice

21. A drug with a half-life of 4 hours is administered at a dosage of 100 mg. How many milligrams of the drug will be in the client's system 8 hours after administration?

ANS:
25 mg
25
Feedback: The half-life of a drug is the time it takes for the amount of drug in the body to decrease to one-half the peak level it previously achieved. Two half-life cycles would yield a serum concentration of 25% of the peak (50% of 50%) or 25 mg in this case.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics | Page 27, Box 2.2
OBJ: 3
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Analyze NOT: Fill-in-the-Blank

22. The nurse administers amoxicillin 500 mg. The half-life of this drug is approximately 1 hour. At what point would the drug level in the body be 62.5 mg if the drug was not administered again?
A) 1 hour after the original dose
B) 2 hours after the original dose
C) 3 hours after the original dose
D) 4 hours after the original dose

ANS: C
Feedback: The half-life of a drug is the time it takes for the amount of drug in the body to decrease to one-half of the peak level it previously achieved. At a dose of 500 mg, the drug level would be 250 mg in 1 hour, 125 mg in 2 hours, 62.5 mg in 3 hours, and 31.25 mg in 4 hours so the correct answer is 3 hours.

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PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics | Page 27, Box 2.2
OBJ: 3
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Analyze NOT: Multiple Choice

23. The nurse is caring for a client diagnosed with a brain infection of bacterial etiology. When administering medications to this client, the nurse should **prioritize** what variable related to the client's diagnosis?
A) The client will require lipid-soluble antibiotics.
B) The client's blood–brain barrier will not allow medications to affect brain tissue.
C) Antibiotics will have to be injected directly into brain tissue.
D) Active infection may destroy the integrity of the blood–brain barrier.

ANS: A
Feedback: Effective antibiotic treatment can occur only when the infection is severe enough to alter the blood–brain barrier and allow antibiotics to cross. Lipid-soluble, not water-soluble, medications cross the blood–brain barrier more easily, and most antibiotics are not lipid soluble, so they are not the exception. No matter where the infection originates, drugs must cross the blood–brain barrier to treat central nervous system infections. Infection will not destroy the blood–brain barrier, which blocks drugs selectively.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Multiple Choice

24. The client with a history of ischemic heart disease is prescribed aspirin 81 mg daily. The nurse should explain that less than 81 mg actually reaches target tissue due to which action?
A) slow distribution
B) first-pass effect
C) reduced absorption
D) adverse effects

ANS: B
Feedback: Drugs that are taken orally are usually absorbed from the small intestine directly into the portal venous system. These absorbed molecules are then delivered into the liver, which immediately breaks the drug into metabolites, some of which are active and cause effects in the body and some of which are deactivated and can be readily excreted from the body. A large percentage of the oral dose is destroyed at this point and never reaches the tissues. This process is caused by the first-pass effect, not by slow distribution, reduced absorption, or adverse drug effects.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

25. The nurse is reviewing the results of the client's laboratory tests. What factor should the nurse **most** consider when reviewing these results related to medication administration?

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A) the client's emotional response to the disease process
B) the timing of the last dose of medication relative to when blood was drawn
C) the possibility of a drug–laboratory test interaction
D) a change in the body's responses or actions related to the drug

ANS: C
Feedback: The body works through a series of chemical reactions. Because of this, administration of a particular drug may alter results of tests that are done on various chemical levels or reactions as part of a diagnostic study. This drug–laboratory test interaction is caused by the drug being given and not necessarily by a change in the body's responses or actions. The client's emotional response or timing of the last dose is not important in drug–laboratory interactions.

PTS: 1 DIF: Moderate REF: Page 31, Nursing Care Guide for R.D.
OBJ: 5
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

26. A client has been diagnosed with gonorrhea and been prescribed oral tetracycline. What should the nurse include in health education about tetracycline? Select all that apply.
A) Avoid excessive sodium intake for the duration of treatment.
B) Do not take the drug with foods or other drugs that contain calcium.
C) Do not take the drug at the same time as an iron supplements or high-iron foods.
D) Avoid OTC medications that contain aspirin.
E) Avoid salt substitutes and foods that are high in potassium.

ANS: B, C
Feedback: The antibiotic tetracycline is not absorbed from the gastrointestinal (GI) tract if calcium or calcium products (e.g., milk) are present in the stomach. It cannot be taken with iron products because a chemical reaction occurs preventing absorption. There is no particular need to avoid sodium, potassium, or aspirin.

PTS: 1 DIF: Moderate REF: Page 31, Nursing Care Guide for R.D.
OBJ: 5
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Teaching/Learning
BLM: Cognitive Level: Apply NOT: Multiple Selection

27. A nurse is caring for a client taking multiple drugs and is concerned about a possible drug–drug interaction. How should the nurse **best** avoid a drug–drug interaction?
A) Consult a drug guide prior to drug administration.
B) Perform a comprehensive health assessment prior to drug administration.
C) Ensure that there is 90 minutes between administration of different drugs.
D) Ask for input from a pharmacist or the prescriber.

ANS: A

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Feedback: Whenever two or more drugs are being given together, first consult a drug guide for a listing of clinically significant drug–drug interactions. There may be a possibility of changing administration times, but the nurse cannot unilaterally make this decision. Health assessment prior to administration has no direct effect on the likelihood of a drug–drug interaction. It is prudent to collaborate with the prescriber and/or the pharmacist, but this does not negate the need to consult reputable published information.

PTS: 1 DIF: Moderate REF: Page 31, Nursing Care Guide for R.D.
OBJ: 5
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Multiple Choice

28. The nurse should promote optimal drug effectiveness by performing what actions? Select all that apply.
A) Incorporate basic history and physical assessment factors into the plan of care.
B) Evaluate the effectiveness of drugs after they have been administered.
C) Modify the drug regimen within the nursing scope of practice to modify adverse or intolerable effects.
D) Minimize the number of medications administered to clients.
E) Examine factors known to influence specific drugs if they are to be effective.

ANS: A, B, C, E
Feedback: Incorporate basic history and physical assessment factors into any plan of care so that obvious problems can be identified and handled promptly. If a drug simply does not do what it is expected to do, further examine the factors that are known to influence drug effects. Frequently, the drug regimen can be modified to deal with that influence. Minimizing the number of medications administered is usually not an option because each drug is ordered for a reason of necessity for the client. Minimizing drugs reduce the risk of adverse effects and drug–drug interactions, but it does not enhance effectiveness of drugs.

PTS: 1 DIF: Moderate REF: Page 31, Nursing Care Guide for R.D.
OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Multiple Selection

29. The nurse administers a specific medication to an older adult client every 4 hours. The client has a history of chronic renal failure. The nurse should assess for indications of which response?
A) cumulative drug effects
B) drug–drug interactions
C) impaired absorption
D) drug tolerance

ANS: A
Feedback: If a drug is taken in successive doses at intervals that are shorter than recommended, or if the body is unable to eliminate a drug properly, the drug can accumulate in the body, leading to toxic levels and adverse effects. This is a cumulative effect. Drug–drug interactions are always a risk, but this risk is not increased by impaired renal function. Renal function has no effect on absorption, and it does not increase tolerance.

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PTS: 1 DIF: Moderate REF: Page 28, Factors Influencing Drug Effects
OBJ: 2
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Multiple Choice

30. The client diagnosed with terminal cancer pain has been receiving morphine sulfate for several days. For the past few days, the medication is no longer effective in controlling the client's pain, and a larger dose is needed to have the same effect. How should the nurse explain this phenomenon to the client?
A) "This is likely a result of your developing tolerance to the medication."
B) "There is likely a build-up of morphine in your body that is unable to affect your pain receptors."
C) "I'll collaborate with your provider to see if there might be other medications that are counteracting your morphine."
D) "You might be developing a mild addiction to morphine, but this is certainly treatable."

ANS: A
Feedback: The body may develop a tolerance to some drugs over time. Tolerance may arise because of increased biotransformation of the drug, increased resistance to its effects, or other pharmacokinetic factors. When tolerance occurs, the amount of the drug no longer causes the same reaction. Therefore, increasingly larger doses are needed to achieve a therapeutic effect. This is not synonymous with addiction, which is psychological dependence. The client's need for higher doses does not suggest drug accumulation.

PTS: 1 DIF: Moderate REF: Page 28, Factors Influencing Drug Effects
OBJ: 5
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Teaching/Learning
BLM: Cognitive Level: Apply NOT: Multiple Choice

31. The client expresses relief to the nurse after being prescribed a new medication, stating that they expect to experience great benefits. The nurse suspects this drug will be more effective than usual for this client because of what effect?
A) cumulative effect
B) first-pass effect
C) placebo effect
D) cross-tolerance effect

ANS: C
Feedback: A drug is more likely to be effective if the client thinks it will work than if the client believes it will *not* work. This is called the placebo effect. If a drug is taken in successive doses at intervals that are shorter than recommended, or if the body is unable to eliminate a drug properly, the drug can accumulate in the body, leading to toxic levels and adverse effects. This is a cumulative effect. First-pass effect addresses the reduction of available drug when taken orally due to metabolism in the liver before the drug reaches the bloodstream. Cross-tolerance is resistance to drugs within the same class.

PTS: 1 DIF: Moderate REF: Page 28, Factors Influencing Drug Effects

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OBJ: 4
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Understand NOT: Multiple Choice

32. The nurse administers an intravenous medication with a half-life of 24 hours. The nurse should recognize what factors in this client that could extend the drug's half-life? Select all that apply.
A) gastrointestinal disease
B) kidney disease
C) liver disease
D) cardiovascular disease
E) route of administration

ANS: B, C, D
Feedback: Kidney disease could slow excretion and extend the drug's half-life. Liver disease could slow metabolism resulting in an extended half-life. Cardiovascular disease could slow distribution resulting in a longer half-life. Gastrointestinal disease would not impact half-life because the medication was injected directly into the bloodstream. Route of administration would not extend half-life because IV injection eliminates the absorption step in the process.

PTS: 1 DIF: Moderate REF: Page 22, Pharmacokinetics
OBJ: 3
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Multiple Selection

33. What information should the nurse provide a client who has developed antibodies to a newly prescribed biological medication?
A) "The antibodies will prevent you from becoming allergic to the drug."
B) "You are now allergic to the proteins in the drug itself."
C) "These antibodies will make the medication extremely effective."
D) "You may experience an allergic reaction to this medication if you receive it again."

ANS: D
Feedback: People can develop allergies to drugs. After exposure to a drug's proteins, a person can develop antibodies to that drug. The client is not allergic to the medication's proteins currently, but with future exposure to the drug, that person may experience a full-blown allergic reaction. Biological medications may lose efficacy in clients who have developed antibodies to those medications. This is most common with biologic medications.

PTS: 1 DIF: Moderate REF: Page 28, Factors Influencing Drug Effects
OBJ: 5
NAT: Client Needs: Physiological Integrity: Pharmacological and Parenteral Therapies
TOP: Chapter 2 KEY: Integrated Process: Nursing Process
BLM: Cognitive Level: Apply NOT: Multiple Choice

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