

Chapter 1 - The Nursing Process and Drug Therapy	3
Chapter 2 - Pharmacologic Principles	7
Chapter 3 - Lifespan Considerations	13
Chapter 4 - Cultural Legal and Ethical Considerations	19
Chapter 5 - Medication Errors Preventing and Responding	25
Chapter 6 - Patient Education and Drug Therapy	29
Chapter 7 - Over-the-Counter Drugs and Herbal and Dietary Supplements	34
Chapter 8 - Gene Therapy and Pharmacogenomics	38
Chapter 9 - Photo Atlas of Drug Administration	42
Chapter 10 - Analgesic Drugs	50
Chapter 11 - General and Local Anesthetics	57
Chapter 12 - Central Nervous System Depressants and Muscle Relaxants	61
Chapter 13 - Central Nervous System Stimulants and Related Drugs	66
Chapter 14 - Antiepileptic Drugs	70
Chapter 15 - Anti-Parkinson Drugs	75
Chapter 16 - Psychotherapeutic Drugs	80
Chapter 17 - Substance Use Disorder	87
Chapter 18 - Adrenergic Drugs	92
Chapter 19 - Adrenergic-Blocking Drugs	97
Chapter 20 - Cholinergic Drugs	102
Chapter 21 - Cholinergic-Blocking Drugs	107
Chapter 22 - Antihypertensive Drugs	112
Chapter 23 - Antianginal Drugs	118
Chapter 24 - Heart Failure Drugs	124
Chapter 25 - Antidysrhythmic Drugs	129
Chapter 26 - Coagulation Modifier Drugs	134
Chapter 27 - Antilipemic Drugs	140
Chapter 28 - Diuretic Drugs	145
Chapter 29 - Fluids and Electrolytes	151
Chapter 30 - Pituitary Drugs	157

Chapter 31 - Thyroid and Antithyroid Drugs	161
Chapter 32 - Antidiabetic Drugs	166
Chapter 33 - Adrenal Drugs	174
Chapter 34 - Women's Health Drugs	178
Chapter 35 - Men's Health Drugs	185
Chapter 36 - Antihistamines Decongestants Antitussives and Expectorants	189
Chapter 37 - Respiratory Drugs	194
Chapter 38 - Antibiotics Part 1	199
Chapter 39 - Antibiotics Part 2	206
Chapter 40 - Antiviral Drugs	211
Chapter 41 - Antitubercular Drugs	216
Chapter 42 - Antifungal Drugs	221
Chapter 43 - Antimalarial Antiprotozoal and Anthelmintic Drugs	226
Chapter 44 - Anti-inflammatory and Antigout Drugs	231
Chapter 45 - Antineoplastic Drugs Part 1 Cancer Overview and Cell Cycle	236
Chapter 46 - Antineoplastic Drugs Part 2 Cell Cycle Nonspecific and Misc. Drugs	242
Chapter 47 - Biologic Response-Modifying and Antirheumatic Drugs	247
Chapter 48 - Immunosuppressant Drugs	252
Chapter 49 - Immunizing Drugs	257
Chapter 50 - Acid-Controlling Drugs	262
Chapter 51 - Bowel Disorder Drugs	268
Chapter 52 - Antiemetic and Antinausea Drugs	275
Chapter 53 - Vitamins and Minerals	280
Chapter 54 - Anemia Drugs	286
Chapter 55 - Nutritional Supplements	292
Chapter 56 - Drugs	296
Chapter 57 - Ophthalmic Drugs	302
Chapter 58 - Otic Drugs	307

## **Chapter 01: The Nursing Process and Drug Therapy**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. The nurse is developing a human needs statement for a patient who has a new diagnosis of heart failure. Identification of human needs statements occur with which of these activities?
  - a. Collection of patient data
  - b. Administering interventions
  - c. Deciding on patient outcomes
  - d. Documenting the patient's behavior

ANS: A

Identification of human needs occurs with the collection of patient data.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Human Needs Statement

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. The patient is to receive oral guaifenesin (Mucinex) twice a day. Today, the nurse was busy and gave the medication 2 hours after the scheduled dose was due. What type of problem does this represent?
  - a. "Right time"
  - b. "Right dose"
  - c. "Right route"
  - d. "Right medication"

ANS: A

"Right time" is correct because the medication was given more than 30 minutes after the scheduled dose was due. "Dose" is incorrect because the dose is not related to the time the medication administration is scheduled. "Route" is incorrect because the route is not affected. "Medication" is incorrect because the medication ordered will not change.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

3. The nurse has been monitoring the patient's progress on a new drug regimen since the first dose and documenting the patient's therapeutic response to the medication. Which phase of the nursing process do these actions illustrate?
  - a. Human needs statement
  - b. Planning
  - c. Implementation
  - d. Evaluation

ANS: D

Monitoring the patient's progress, including the patient's response to the medication, is part of the evaluation phase. Planning, implementation, and human needs statement are not illustrated by this example.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

4. The nurse is assigned to a patient who is newly diagnosed with type 1 diabetes mellitus. Which statement best illustrates an outcome criterion for this patient?
- The patient will follow instructions.
  - The patient will not experience complications.
  - The patient will adhere to the new insulin treatment regimen.
  - The patient will demonstrate correct blood glucose testing technique.

ANS: D

“Demonstrating correct blood glucose testing technique” is a specific and measurable outcome criterion. “Following instructions” and “not experiencing complications” are not specific criteria. “Adhering to new regimen” would be difficult to measure.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

5. Which activity best reflects the implementation phase of the nursing process for the patient who is newly diagnosed with hypertension?
- Providing education on keeping a journal of blood pressure readings
  - Setting goals and outcome criteria with the patient’s input
  - Recording a drug history regarding over-the-counter medications used at home
  - Formulating human needs statements regarding insufficient knowledge related to the new treatment regimen

ANS: A

Education is an intervention that occurs during the implementation phase. Setting goals and outcomes reflects the planning phase. Recording a drug history reflects the assessment phase. Formulating human needs statements reflects analysis of data as part of planning.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

6. The medication order reads, “Give ondansetron (Zofran) 4 mg, 30 minutes before beginning chemotherapy to prevent nausea.” The nurse notes that the route is missing from the order. What is the nurse’s best action?
- Give the medication intravenously because the patient might vomit.
  - Give the medication orally because the tablets are available in 4-mg doses.
  - Contact the prescriber to clarify the route of the medication ordered.
  - Hold the medication until the prescriber returns to make rounds.

ANS: C

A complete medication order includes the route of administration. If a medication order does not include the route, the nurse must ask the prescriber to clarify it. The intravenous and oral routes are not interchangeable. Holding the medication until the prescriber returns would mean that the patient would not receive a needed medication.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

7. When the nurse considers the timing of a drug dose, which factor is appropriate to consider when deciding when to give a drug?
- The patient's ability to swallow
  - The patient's height
  - The patient's last meal
  - The patient's allergies

ANS: C

The nurse must consider specific pharmacokinetic/pharmacodynamic drug properties that may be affected by the timing of the last meal. The patient's ability to swallow, height, and allergies are not factors to consider regarding the timing of the drug's administration.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

8. The nurse is performing an assessment of a newly admitted patient. Which is an example of subjective data?
- Blood pressure 158/96 mm Hg
  - Weight 255 pounds
  - The patient reports that he uses the herbal product ginkgo.
  - The patient's complete blood count results.

ANS: C

Subjective data include information shared through the spoken word by any reliable source, such as the patient. Objective data may be defined as any information gathered through the senses or that which is seen, heard, felt, or smelled. A patient's blood pressure, weight, and laboratory tests are all examples of objective data.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

## MULTIPLE RESPONSE

1. When giving medications, the nurse will follow the rights of medication administration. The rights include the right documentation, the right reason, the right response, and the patient's right to refuse. Which of these are additional rights? (*Select all that apply.*)
- Right drug
  - Right route
  - Right dose
  - Right diagnosis
  - Right time
  - Right patient

ANS: A, B, C, E, F

Additional rights of medication administration must always include the right drug, right dose, right time, right route, and right patient. The right diagnosis is incorrect.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

2. Place the phases of the nursing process in the correct order, with 1 as the first phase and 5 as the last phase. (*Select all that apply.*)
- a. Planning
  - b. Evaluation
  - c. Assessment
  - d. Implementation
  - e. Human needs statement

ANS: A, B, C, D, E

The nursing process is an ongoing process that begins with assessing and continues with human needs statement, planning, implementing, and evaluating.

DIF: Cognitive Level: Applying (Application)  
General

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

## Chapter 02: Pharmacologic Principles

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#### MULTIPLE CHOICE

1. The patient is receiving two different drugs. At current dosages and dosage forms, both drugs have the same concentration of the active ingredient. Which term is used to identify this principle?
  - a. Bioequivalent
  - b. Synergistic
  - c. Prodrugs
  - d. Steady state

ANS: A

Two drugs absorbed into the circulation in the same amount (in specific dosage forms) have the same bioavailability; thus, they are bioequivalent. A drug's steady state is the physiologic state in which the amount of drug removed via elimination is equal to the amount of drug absorbed from each dose. The term *synergistic* refers to two drugs, given together, with a resulting effect that is greater than the sum of the effects of each drug given alone. A prodrug is an inactive drug dosage form that is converted to an active metabolite by various biochemical reactions once it is inside the body.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. When given an intravenous medication, the patient says to the nurse, "I usually take pills. Why does this medication have to be given in the arm?" What is the nurse's best answer?
  - a. "The medication will cause fewer adverse effects when given intravenously."
  - b. "The intravenous medication will have delayed absorption into the body's tissues."
  - c. "The action of the medication will begin sooner when given intravenously."
  - d. "There is a lower chance of allergic reactions when drugs are given intravenously."

ANS: C

An intravenous (IV) injection provides the fastest route of absorption. The IV route does not affect the number of adverse effects, nor does it cause delayed tissue absorption (it results in faster absorption). The IV route does not affect the number of allergic reactions.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The nurse is administering parenteral drugs. Which statement is true regarding parenteral drugs?
  - a. Parenteral drugs bypass the first-pass effect.
  - b. Absorption of parenteral drugs is affected by reduced blood flow to the stomach.
  - c. Absorption of parenteral drugs is faster when the stomach is empty.
  - d. Parenteral drugs exert their effects while circulating in the bloodstream.

ANS: A

Drugs given by the parenteral route bypass the first-pass effect. Reduced blood flow to the stomach and the presence of food in the stomach apply to enteral drugs (taken orally), not to parenteral drugs. Parenteral drugs must be absorbed into cells and tissues from the circulation before they can exert their effects; they do not exert their effects while circulating in the bloodstream.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. When monitoring the patient receiving an intravenous infusion to reduce blood pressure, the nurse notes that the patient's blood pressure is extremely low, and the patient is lethargic and difficult to awaken. This would be classified as which type of adverse drug reaction?
- Adverse effect
  - Allergic reaction
  - Idiosyncratic reaction
  - Pharmacologic reaction

ANS: D

A pharmacologic reaction is an extension of a drug's normal effects in the body. In this case, the antihypertensive drug lowered the patient's blood pressure levels too much. The other options do not describe a pharmacologic reaction. An adverse effect is a predictable, well-known adverse drug reaction that results in minor or no changes in patient management. An allergic reaction (also known as a *hypersensitivity reaction*) involves the patient's immune system. An idiosyncratic reaction is unexpected and is defined as a genetically determined abnormal response to normal dosages of a drug.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse is reviewing pharmacology terms for a group of newly graduated nurses. Which sentence defines a drug's half-life?
- The time it takes for the drug to cause half of its therapeutic response
  - The time it takes for one half of the original amount of a drug to reach the target cells
  - The time it takes for one half of the original amount of a drug to be removed from the body
  - The time it takes for one half of the original amount of a drug to be absorbed into the circulation

ANS: C

A drug's half-life is the time it takes for one half of the original amount of a drug to be removed from the body. It is a measure of the rate at which drugs are removed from the body. The other options are incorrect definitions of half-life.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



6. When administering drugs, the nurse remembers that the duration of action of a drug is defined as which of these?
- The time it takes for a drug to elicit a therapeutic response
  - The amount of time needed to remove a drug from circulation
  - The time it takes for a drug to achieve its maximum therapeutic response
  - The time period at which a drug's concentration is sufficient to cause a therapeutic response

ANS: D

Duration of action is the time during which drug's concentration is sufficient to elicit a therapeutic response. The other options do not define duration of action. A drug's onset of action is the time it takes for the drug to elicit a therapeutic response. A drug's peak effect is the time it takes for the drug to reach its maximum therapeutic response. Elimination is the length of time it takes to remove a drug from circulation.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. When reviewing the mechanism of action of a specific drug, the nurse reads that the drug works by selective enzyme interaction. Which of these processes describes selective enzyme interaction?
- The drug alters cell membrane permeability.
  - The drug's effectiveness within the cell walls of the target tissue is enhanced.
  - The drug is attracted to a receptor on the cell wall, preventing an enzyme from binding to that receptor.
  - The drug binds to an enzyme molecule and inhibits or enhances the enzyme's action with the normal target cell.

ANS: D

With selective enzyme interaction, the drug attracts the enzymes to bind with the drug instead of allowing the enzymes to bind with their normal target cells. As a result, the target cells are protected from the action of the enzymes. This results in a drug effect. The actions described in the other options do not occur with selective enzyme interactions.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. When administering a new medication to a patient, the nurse reads that it is highly protein bound. Assuming that the patient's albumin levels are normal, the nurse would expect which result, as compared to a medication, that is not highly protein bound?
- Renal excretion will be faster.
  - The drug will be metabolized quickly.
  - The duration of action of the medication will be shorter.
  - The duration of action of the medication will be longer.

ANS: D

Drugs that are bound to plasma proteins are characterized by longer duration of action. Protein binding does not make renal excretion faster, does not speed up drug metabolism, and does not cause the duration of action to be shorter.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The patient is experiencing chest pain and needs to take a sublingual form of nitroglycerin. Where does the nurse instruct the patient to place the tablet?
- Under the tongue
  - On top of the tongue
  - At the back of the throat
  - In the space between the cheek and the gum

ANS: A

Drugs administered via the sublingual route are placed under the tongue. Drugs administered via the buccal route are placed in the space between the cheek and the gum; oral drugs are swallowed. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse is administering medications to the patient who is in renal failure resulting from end-stage renal disease. The nurse is aware that patients with kidney failure would most likely have problems with which pharmacokinetic phase?
- Absorption
  - Distribution
  - Metabolism
  - Excretion

ANS: D

The kidneys are the organs that are most responsible for drug excretion. Renal function does not affect the absorption and distribution of a drug. Renal function may affect metabolism of drugs to a small extent.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient who has advanced cancer is receiving opioid medications around the clock to keep him comfortable as he nears the end of his life. Which term best describes this type of therapy?
- Palliative therapy
  - Maintenance therapy
  - Empiric therapy
  - Supplemental therapy

ANS: A

The goal of palliative therapy is to make the patient as comfortable as possible. It is typically used in the end stages of illnesses when all attempts at curative therapy have failed. Maintenance therapy is used for the treatment of chronic illnesses such as hypertension. Empiric therapy is based on clinical probabilities and involves drug administration when a certain pathologic condition has an uncertain but high likelihood of occurrence based on the patient's initial presenting symptoms. Supplemental therapy (or replacement therapy) supplies the body with a substance needed to maintain normal function.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. The patient is stating that he has a headache and asks the nurse which over-the-counter medication form would work the fastest to help reduce the pain. Which medication form will the nurse suggest?
- A capsule
  - A tablet
  - An enteric-coated tablet
  - A powder

ANS: D

Of the types of oral medications listed, the powder form would be absorbed the fastest, thus having a faster onset. The tablet, the capsule, and, finally, the enteric-coated tablet would be absorbed next, in that order.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

13. The nurse will be injecting a drug into the superficial skin layers immediately underneath the epidermal layer of skin. Which route does this describe?
- Intradermal
  - Subcutaneous
  - Intramuscular
  - Transdermal

ANS: A

Injections under the more superficial skin layers immediately underneath the epidermal layer of skin and into the dermal layer are known as *intradermal* injections. Injections into the fatty subcutaneous tissue under the dermal layer of skin are referred to as *subcutaneous* injections. Injections into the muscle beneath the subcutaneous fatty tissue are referred to as *intramuscular* injections. Transdermal drugs are applied to the skin via an adhesive patch.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. Which drugs would be affected by the first-pass effect when administered? (*Select all that apply.*)
  - a. Morphine given by IV push injection
  - b. Sublingual nitroglycerin tablets
  - c. Diphenhydramine (Benadryl) elixirs
  - d. Levothyroxine (Synthroid) tablets
  - e. Transdermal nicotine patches
  - f. Esomeprazole (Nexium) capsules
  - g. Penicillin given by IV piggyback infusion

ANS: C, D, F

Orally administered drugs (elixirs, tablets, and capsules) undergo the first-pass effect, because they are metabolized in the liver after being absorbed into the portal circulation from the small intestine. IV medications (IV push and IV piggyback) enter the bloodstream directly and do not go directly to the liver. Sublingual tablets and transdermal patches also enter the bloodstream without going directly to the liver, thus avoiding the first-pass effect.

DIF: Cognitive Level: Applying (Application)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A drug dose that delivers 800 mg has a half-life of 5 hours. Identify how much drug will remain in the body after one half-life. \_\_\_\_\_

ANS:

400 mg

A drug's half-life is the time required for one half of an administered dose of a drug to be eliminated by the body, or the time it takes for the blood level of a drug to be reduced by 50%. Therefore, one half of 800 mg equals 400 mg.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 03: Lifespan Considerations**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. Drug transfer to the fetus is more likely during the last trimester of pregnancy for which reason?
  - a. Decreased fetal surface area
  - b. Increased placental surface area
  - c. Enhanced blood flow to the fetus
  - d. Increased amount of protein-bound drug in maternal circulation

ANS: C

Drug transfer to the fetus is more likely during the last trimester of pregnancy as a result of enhanced blood flow to the fetus. The other options are incorrect. Increased fetal surface area, not decreased, is a factor that affects drug transfer to the fetus. The placenta's surface area does not increase during this time. Drug transfer is increased because of an increased amount of free drug, not protein-bound drug, in the mother's circulation.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Health Promotion and Maintenance

2. The nurse is monitoring a patient who is in the 26th week of pregnancy and has developed gestational diabetes and pneumonia. She is given medications that pose a possible fetal risk, but the potential benefits may warrant the use of the medications in her situation. The nurse recognizes that these medications are in which U.S. Food and Drug Administration pregnancy safety category?
  - a. Category X
  - b. Category B
  - c. Category C
  - d. Category D

ANS: D

Pregnancy category D fits the description given. Category B indicates no risk to animal fetus; information for humans is not available. Category C indicates adverse effects reported in animal fetus; information for humans is not available. Category X consists of drugs that should not be used in pregnant women because of reports of fetal abnormalities and positive evidence of fetal risk in humans.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

3. When discussing dosage calculation for pediatric patients with a clinical pharmacist, the nurse notes that which type of dosage calculation is used most commonly in pediatric calculations?
  - a. West nomogram
  - b. Clark rule
  - c. Height-to-weight ratio

d. Milligram per kilogram of body weight formula

ANS: D

The milligram per kilogram formula, based on body weight, is the most common method of calculating doses for pediatric patients. The other options are available methods but are not the most commonly used. Height-to-weight ratio is not used.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

4. The nurse is assessing a newly admitted 83-year-old patient and determines that the patient is experiencing polypharmacy. Which statement most accurately illustrates polypharmacy?
- The patient is experiencing multiple illnesses.
  - The patient uses one medication for an illness several times per day.
  - The patient uses over-the-counter drugs for an illness.
  - The patient uses multiple medications simultaneously.

ANS: D

Polypharmacy usually occurs when a patient has several illnesses and takes medications for each of them, possibly prescribed by different specialists who may be unaware of other treatments the patient is undergoing. The other options are incorrect. Polypharmacy addresses the medications taken, not just the illnesses. Polypharmacy means the patient is taking several different medications, not just one, and can include prescription drugs, over-the-counter medications, and herbal products.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse is aware that confusion, forgetfulness, and increased risk for falls are common responses in an elderly patient who is taking which type of drug?
- Laxatives
  - Anticoagulants
  - Sedatives
  - Antidepressants

ANS: C

Sedatives and hypnotics often cause confusion, daytime sedation, ataxia, lethargy, forgetfulness, and increased risk for falls in the elderly. Laxatives, anticoagulants, and antidepressants may cause adverse effects in the elderly, but not the ones specified in the question.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

6. For accurate medication administration to pediatric patients, the nurse must take into account which criteria?
- Organ maturity
  - Renal output
  - Body temperature
  - Height

ANS: A

To administer medications to pediatric patients accurately, one must take into account organ maturity, body surface area, age, and weight. The other options are incorrect; renal output and body temperature are not considerations, and height alone is not sufficient.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

7. The nurse recognizes that an elderly patient may experience a reduction in the stomach's ability to produce hydrochloric acid. This change may result in which effect?
- Delayed gastric emptying
  - Increased gastric acidity
  - Decreased intestinal absorption of medications
  - Altered absorption of some drugs

ANS: D

Reduction in the stomach's ability to produce hydrochloric acid is an aging-related change that results in a decrease in gastric acidity and may alter the absorption of some drugs. The other options are not results of reduced hydrochloric acid production.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment MSC: NCLEX: Health Promotion and Maintenance

8. The nurse is administering drugs to neonates and will consider which factor may contribute the most to drug toxicity?
- The lungs are immature.
  - The kidneys are small.
  - The liver is not fully developed.
  - Excretion of the drug occurs quickly.

ANS: C

A neonate's liver is not fully developed and cannot detoxify many drugs. The other options are incorrect. The lungs and kidneys do not play major roles in drug metabolism. Renal excretion is slow, not fast, because of organ immaturity, but this is not the factor that contributes the most to drug toxicity.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Planning dosage has been double-checked and updated

MSC: NCLEX: Health Promotion and Maintenance

9. An 83-year-old woman has been given a thiazide diuretic to treat heart failure. She and her daughter should be told to watch for which problems?
- Constipation and anorexia
  - Fatigue, leg cramps, and dehydration
  - Daytime sedation and lethargy
  - Edema, nausea, and blurred vision

ANS: B

Electrolyte imbalance, leg cramps, fatigue, and dehydration are common complications when thiazide diuretics are given to elderly patients. The other options do not describe complications that occur when these drugs are given to the elderly.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. An elderly patient with a new diagnosis of hypertension will be receiving a new prescription for an antihypertensive drug. The nurse expects which type of dosing to occur with this drug therapy?
- Drug therapy will be based on the patient's weight.
  - Drug therapy will be based on the patient's age.
  - The patient will receive the maximum dose that is expected to reduce the blood pressure.
  - The patient will receive the lowest possible dose at first, and then the dose will be increased as needed.

ANS: D

As a general rule, dosing for elderly patients should follow the admonition, "Start low, and go slow," which means to start with the lowest possible dose (often less than an average adult dose) and increase the dose slowly, if needed, based on patient response. The other responses are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. The nurse is trying to give a liquid medication to a  $2\frac{1}{2}$ -year-old child and notes that the medication has a strong taste. Which technique is the best way for the nurse to give the medication to this child?
- Give the medication with a spoonful of ice cream.
  - Add the medication to the child's bottle.
  - Tell the child you have candy for him.
  - Add the medication to a cup of milk.

ANS: A

Ice cream or another nonessential food disguises the taste of the medication. The other options are incorrect. If the child does not drink the entire contents of the bottle, medication is wasted and the full dose is not administered. Using the word *candy* with drugs may lead to the child thinking that drugs are actually candy. If the medication is mixed with a cup of milk, the child may not drink the entire cup of milk, and the distasteful drug may cause the child to refuse milk in the future.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. The nurse is preparing to give an injection to a 4-year-old child. Which intervention is age appropriate for this child?
- Give the injection without any advanced preparation.
  - Give the injection, and then explain the reason for the procedure afterward.
  - Offer a brief, concrete explanation of the procedure at the patient's level and with the parent or caregiver present.



- d. Prepare the child in advance with details about the procedure without the parent or caregiver present.

ANS: C

For a 4-year-old child, offering a brief, concrete explanation about a procedure just beforehand, with the parent or caregiver present, is appropriate. The other options are incorrect for any age group.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation MSC: NCLEX: Psychosocial Integrity

## MULTIPLE RESPONSE

1. Which statements are true regarding pediatric patients and pharmacokinetics? (*Select all that apply.*)
  - a. The levels of microsomal enzymes are decreased.
  - b. Perfusion to the kidneys may be decreased and may result in reduced renal function.
  - c. First-pass elimination is increased because of higher portal circulation.
  - d. First-pass elimination is reduced because of the immaturity of the liver.
  - e. Total body water content is much less than in adults.
  - f. Gastric emptying is slowed because of slow or irregular peristalsis.
  - g. Gastric emptying is more rapid because of increased peristaltic activity.

ANS: A, B, D, F

In children, first-pass elimination by the liver is reduced because of the immaturity of the liver, and microsomal enzymes are decreased. In addition, gastric emptying is reduced because of slow or irregular peristalsis. Perfusion to the kidneys may be decreased, resulting in reduced renal function. The other options are incorrect. In addition, remember that total body water content is greater in children than in adults.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment MSC: NCLEX: Health Promotion and Maintenance

2. Which statements are true regarding the elderly and pharmacokinetics? (*Select all that apply.*)
  - a. The levels of microsomal enzymes are decreased.
  - b. Fat content is increased because of decreased lean body mass.
  - c. Fat content is decreased because of increased lean body mass.
  - d. The number of intact nephrons is increased.
  - e. The number of intact nephrons is decreased.
  - f. Gastric pH is less acidic.
  - g. Gastric pH is more acidic.

ANS: A, B, E, F

In the elderly, levels of microsomal enzymes are decreased because the aging liver is less able to produce them; fat content is increased because of decreased lean body mass; the number of intact nephrons is decreased as the result of aging; and gastric pH is less acidic because of a gradual reduction of the production of hydrochloric acid. The other options are incorrect statements.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Health Promotion and Maintenance

### COMPLETION

1. A 7-year-old child will be receiving amoxicillin (Amoxil) 50 mg/kg/day in two divided doses. The child weighs 55 pounds. The medication, once reconstituted, is available as an oral suspension of 125 mg/5 mL. Identify how many milliliters will the child receive per dose. \_\_\_\_\_

ANS:

25 mL per dose

Convert pounds to kilograms: 55 pounds = 25 kg.

$25 \text{ kg} \times 50 \text{ mg/kg/day} = 1250 \text{ mg/day}$

To get the amount per dose, divide 1250 by 2, which equals 625 mg/dose.

To calculate the milliliters:

$125 \text{ mg}:5 \text{ mL} :: 625 \text{ mg}:x \text{ mL}$

$(125 \times x) = (5 \times 625); 125x = 3125; x = 25 \text{ mL/dose}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 04: Cultural, Legal, and Ethical Considerations**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. During the development of a new drug, which would be included in the study by the researcher to prevent any bias or unrealistic expectations of the new drug's usefulness?
  - a. A placebo
  - b. FDA approval
  - c. Informed consent
  - d. Safety information

ANS: A

To prevent bias that may occur as a result of unrealistic expectations of an investigational new drug, a placebo is incorporated into the study. The other options are incorrect. FDA approval, if given, does not occur until after phase III. Informed consent is required in all drug studies. Safety information is not determined until the study is under way.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

2. A member of an investigational drug study team is working with healthy volunteers whose participation will help to determine the optimal dosage range and pharmacokinetics of the drug. The team member is participating in what type of study?
  - a. Phase I
  - b. Phase II
  - c. Phase III
  - d. Phase IV

ANS: A

Phase I studies involve small numbers of healthy volunteers to determine optimal dosage range and the pharmacokinetics of the drug. The other phases progressively involve volunteers who have the disease or ailment that the drug is designed to diagnose or treat.

DIF: Cognitive Level: Applying (Application)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. During discharge patient teaching, the nurse reviews prescriptions with a patient. Which statement is correct about refills for an analgesic that is classified as Schedule C-III?
  - a. No prescription refills are permitted.
  - b. Refills are allowed only by written prescription.
  - c. The patient may have no more than five refills in a 6-month period.
  - d. Written prescriptions expire in 12 months.

ANS: C

Schedule C-III medications may be refilled no more than five times in a 6-month period. The patient should be informed of this regulation. No prescription refills are permitted for Schedule C-II drugs. Requiring refills by written prescription only applies to Schedule C-II drugs. Schedule C-III prescriptions (written or oral) expire in 6 months.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient has been selected as a potential recipient of an experimental drug for heart failure. The nurse knows that when informed consent has been obtained, it indicates which of these?
- The patient has been informed that he or she will need to stay in the study until it ends.
  - The patient will be informed of the details of the study as the research continues.
  - The patient will receive the actual drug during the experiment.
  - The patient has had the study's purpose, procedures, and possible benefits as well as risks involved explained to him.

ANS: D

Informed consent involves the careful explanation of the purpose of the study, the procedures to be used, and the risks involved. The other options do not describe informed consent. Participation in studies is voluntary and patients have the right to end participation at any time.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

5. For which cultural group must the health care provider respect the value placed on preserving harmony with nature and the belief that disease is a result of ill spirits?
- Hispanics
  - Asian Americans
  - Native Americans
  - African Americans

ANS: C

Some Native Americans believe in preserving harmony with nature and that disease is a result of ill spirits. The groups listed in the other options do not typically reflect these practices.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Assessment

MSC: NCLEX: Psychosocial Integrity

6. The nurse is assessing an elderly Hispanic woman who is being treated for hypertension. During the assessment, what is important for the nurse to remember about cultural aspects?
- The patient should be discouraged from using folk remedies and rituals.
  - The nurse will expect the patient to value protective bracelets and "root doctors" as healers.
  - The nurse will remember that the balance among body, mind, and environment is

important for this patient's health beliefs.

- d. The nurse's assessment needs to include gathering information regarding religious practices and beliefs regarding medication, treatment, and healing.

ANS: D

All beliefs need to be considered clearly so as to prevent a conflict from arising between the goals of nursing and health care and the dictates of a patient's cultural background. Assessing religious practices and beliefs is part of a thorough cultural assessment. The other options are incorrect. The nurse should not ignore a patient's cultural practices. The concept of balance among body, mind, and environment and the valuing of protective bracelets and root doctors reflect beliefs or practices that usually do not apply to the Hispanic cultural group.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Psychosocial Integrity

7. When reviewing the various schedules of controlled drugs, the nurse knows that which description correctly describes Schedule II drugs?
  - a. Drugs with high potential for abuse that have accepted medical use
  - b. Drugs with high potential for abuse that do not have accepted medical use
  - c. Medically accepted drugs that may cause moderate physical or psychologic dependence
  - d. Medically accepted drugs with limited potential for causing physical or psychologic dependence

ANS: A

Schedule II drugs are those with high potential for abuse but that have accepted medical use. Drugs that have high potential for abuse but do not have accepted medical use are Schedule I drugs. Medically accepted drugs that have moderate physical or high psychologic dependence potential are Schedule III drugs. Medically accepted drugs with limited potential for causing physical or psychologic dependence are Schedule IV and V drugs.

DIF: Cognitive Level: Remembering (Knowledge)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is reviewing facts about pharmacology for a review course. The term *legend drug* refers to which item?
  - a. Over-the-counter drugs
  - b. Prescription drugs
  - c. Orphan drugs
  - d. Older drugs

ANS: B

The term *legend drug* refers to prescription drugs, which were differentiated from over-the-counter drugs by the 1951 Durham-Humphrey Amendment. Orphan drugs are drugs that are developed for rare diseases. The other options are not examples of legend drugs.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. Nurses have the ethical responsibility to tell the truth to their patients. What is this principle known as?
- Justice
  - Veracity
  - Beneficence
  - Autonomy

ANS: B

*Veracity* is defined as the duty to tell the truth. *Justice* is the ethical principle of being fair or equal in one's actions. *Beneficence* is the ethical principle of doing or actively promoting good. *Autonomy* is self-determination, or the ability to make one's own decisions.

DIF: Cognitive Level: Remembering (Knowledge)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

10. A patient is undergoing major surgery and asks the nurse about a living will. He states, "I don't want anybody else making decisions for me. And I don't want to prolong my life." The patient is demonstrating which ethical term?
- Autonomy
  - Beneficence
  - Justice
  - Veracity

ANS: A

*Autonomy* includes self-determination, or the ability to act on one's own, including making one's own decisions about health care. *Veracity* is defined as the duty to tell the truth. *Justice* is the ethical principle of being fair or equal in one's actions. *Beneficence* is the ethical principle of doing or actively promoting good.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

11. The nurse is reviewing a list of scheduled drugs and notes that Schedule C-I drugs are not on the list. Which is a characteristic of Schedule C-I drugs?
- No refills are permitted.
  - They may be obtained over-the-counter with a signature.
  - They are available only by written prescription.
  - They are used only with approved protocols.

ANS: D

Schedule C-I drugs are used only with approved protocols. Schedule C-II drugs are available only by written prescription, and refills are not permitted. Being available over-the-counter with a signature may be true of Schedule C-V drugs in certain states.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. During a busy night shift, a new nurse administered an unfamiliar medication without checking it in a drug handbook. Later that day, the patient had a severe reaction because he has renal problems, which was a contraindication to that drug. The nurse may be liable for which of these?
- Medical negligence
  - Nursing negligence
  - Nonmaleficence
  - Autonomy

ANS: B

*Negligence* is the failure to act in a reasonable and prudent manner or failure of the nurse to give the care that a reasonably prudent (cautious) nurse would render or use under similar circumstances. Nurses are expected to assess patients thoroughly before medications are given, and to be familiar with medications they are administering (see Box 4-2). In this case, nursing negligence applies to nurses, not medical negligence.

*Nonmaleficence* is defined as the duty to do no harm; *autonomy* is defined as the right to make one's own decisions, or self-determination.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

## MULTIPLE RESPONSE

1. The nurse is reviewing the concept of drug polymorphism. Which factors contribute to drug polymorphism? (*Select all that apply.*)
- The number of drugs ordered by the physician
  - Inherited factors
  - The patient's diet and nutritional status
  - Different dosage forms of the same drug
  - The patient's cultural practices
  - The patient's drug history
  - The various available forms of a drug

ANS: B, C, E

Inherited factors, diet and nutritional status, and cultural practices are some of the factors that contribute to drug polymorphism. The other options are not factors that contribute to drug polymorphism.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is performing an admission assessment. Which findings reflect components of a cultural assessment? (*Select all that apply.*)
- The patient uses aspirin as needed for pain.
  - The patient has a history of hypertension.
  - The patient uses herbal tea to relax in the evenings.
  - The patient does not speak English.
  - The patient is allergic to shellfish.

- f. The patient does not eat pork products because of religious beliefs.

ANS: A, C, D, F

The past use of medicines, use of herbal treatments, languages spoken, and religious practices and beliefs are components of a cultural assessment. The other options reflect components of a general medication assessment or health history.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Psychosocial Integrity



## Chapter 05: Medication Errors: Preventing and Responding

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is reviewing medication errors. Which situation is an example of a medication error?
  - a. A patient refuses her morning medications.
  - b. A patient receives a double dose of a medication because the nurse did not cut the pill in half.
  - c. A patient develops hives after having started an IV antibiotic 24 hours earlier.
  - d. A patient complains of severe pain still present 60 minutes after a pain medication was given.

ANS: B

A medication error is defined as a *preventable* adverse drug event that involves inappropriate medication use by a patient or health care provider. The other options are not preventable. The patient's refusing to take medications and complaining of pain after a medication is given are patient behaviors, and the development of hives is a possible allergic reaction.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. The nurse is reviewing a list of verbal medication orders. Which is the proper notation of the dose of the drug ordered?
  - a. Levothyroxine.75 mg
  - b. Levothyroxine.750 mg
  - c. Levothyroxine 0.75 mg
  - d. Levothyroxine 0.750 mg

ANS: C

Levothyroxine 0.75 mg illustrates the correct notation with a leading zero before the decimal point. Omitting the leading zero may cause the order to be misread, resulting in a large drug overdose. Levothyroxine.75 mg and Levothyroxine .750 mg do not have the leading zero before the decimal point. Levothyroxine 0.750 mg has trailing zero, which also is incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

3. When given a scheduled morning medication, the patient states, "I haven't seen that pill before. Are you sure it's correct?" The nurse checks the medication administration record and verifies that it is listed. Which is the nurse's best response?
  - a. "It's listed here on the medication sheet, so you should take it."
  - b. "Go ahead and take it, and then I'll check with your doctor about it."
  - c. "It wouldn't be listed here if it were not ordered for you!"
  - d. "Let me check on the order first before you take it."

ANS: D

When giving medications, the nurse should always listen to and honor any concerns or doubts expressed by the patient. If the patient doubts an order, the nurse should check the written order and/or check with the prescriber. The other options illustrate that the nurse is not listening to the patient's concerns.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

4. During a period of time when the computerized medication order system was down, the prescriber wrote admission orders, and the nurse is transcribing them. The nurse is having difficulty transcribing one order because of the prescriber's handwriting. Which is the best action for the nurse to take at this time?
- Ask a colleague what the order says.
  - Contact the prescriber to clarify the order.
  - Wait until the prescriber makes rounds again to clarify the order.
  - Ask the patient what medications he takes at home.

ANS: B

If a prescriber writes an order that is illegible, the nurse should contact the prescriber for clarification. Asking a colleague is not useful because the colleague did not write the order. Waiting for the prescriber to return is incorrect because it would delay implementation of the order. Asking the patient about medications is incorrect because this question will not clarify the current order written by the prescriber.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

5. When taking a telephone order for a medication, which action by the nurse is most appropriate?
- Verify the order with the charge nurse.
  - Call back the prescriber to review the order.
  - Repeat the order to the prescriber before hanging up the telephone.
  - Ask the pharmacist to double-check the order.

ANS: C

For telephone or verbal orders, repeat the order back to the prescriber before hanging up the telephone. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

6. During morning medication administration, the nurse discovered an error on the electronic MAR before the medication was given. Which action by the nurse is appropriate for this "near-miss?"
- Correct the MAR error but say nothing because nothing happened.
  - Notify the pharmacy about the error they almost caused.
  - Report the near-miss using the facility's recommended protocol, and correct the

error on the MAR.

- d. Report the near-miss to the next shift before the next dose is due.

ANS: C

If a “near-miss” occurs, report using the health care facility’s policies and procedures for reporting, regardless of whether an error occurred. The other responses are not appropriate actions.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

7. When reviewing pediatric medication administration, the nurse recognizes that which type of medication error is most common with children?
  - a. Oral medication administration errors
  - b. Wrong route errors
  - c. Incorrect dosage form errors
  - d. Dosing errors

ANS: D

The most common medication errors in pediatrics are dosing errors. The other responses are possible, but are not the most common medication errors in pediatrics.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

## MULTIPLE RESPONSE

1. The nurse can prevent medication errors by following which principles? (*Select all that apply.*)
  - a. Assess for allergies after giving medications.
  - b. Use two patient identifiers before giving medications.
  - c. Always following the rights of medication administration.
  - d. Minimize the use of verbal and telephone orders.
  - e. Use trade names instead of generic names to avoid confusion.

ANS: B, C, D

Measures that prevent medication errors include using two patient identifiers, minimizing the use of verbal and telephone orders, and always following the rights of medication administration. Assessment for allergies should be done *before* medications are given. Generic names should be used to avoid the many sound-alike trade names of medications.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## COMPLETION

1. Levothyroxine is available in 75-mcg tablet form. Convert this dose to milligram strength. (do not round) \_\_\_\_\_

ANS:

0.075 mg

One mg equals 1000 mcg. To convert 75 mcg to mg, divide 75 by 1000 to equal 0.075 mg, or move the decimal point to the *left* three spaces. Do not forget to include the leading zero in front of the decimal point.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. Digoxin is available in 0.125-mg tablet form. Convert this dose to microgram strength. (do not round) \_\_\_\_\_

ANS:

125 mcg

One mg equals 1000 mcg. To convert 0.125 mg to mcg, multiply by 1000 to equal 125 mcg, or move the decimal point to the *right* three spaces.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 06: Patient Education and Drug Therapy

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is reviewing the teaching plan for a clinic patient who was seen for a sinus infection. Which of these outcomes reflect the affective domain of learning?
  - a. The patient will take the prescribed antibiotic for the full 14 days of the prescription.
  - b. The patient will demonstrate correct nasal spray self-administration.
  - c. The patient will list signs and symptoms that need to be reported immediately if they occur.
  - d. The patient will list measures to take to reduce allergy triggers at home.

ANS: A

The affective domain is the most intangible component of the learning process. Affective behavior is conduct that expresses feelings, needs, beliefs, values, and opinions. Adhering to the prescribed medication regimen is an example of the affective domain.

Demonstrating nasal spray self-administration reflects the psychomotor domain; listing signs and symptoms or measures to take both reflect the cognitive domain.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. The nurse is developing a care plan for a patient who will be self-administering a metered-dose inhaler. Which statement reflects a measurable outcome?
  - a. The patient will know about self-administration of a metered-dose inhaler.
  - b. The patient will understand the principles of self-administration of a metered-dose inhaler.
  - c. The patient will demonstrate the proper technique of self-administering a metered-dose inhaler.
  - d. The patient will comprehend the proper technique of self-administering a metered-dose inhaler.

ANS: C

The word *demonstrate* is a measurable verb, and measurable terms should be used when developing goals and outcome criteria statements. The other options are incorrect because the terms *know*, *understand*, and *comprehend* are not measurable terms.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

3. During a nursing assessment, which question by the nurse allows for greater clarification and additional discussion with the patient?
  - a. "Are you allergic to penicillin?"
  - b. "What medications do you take?"
  - c. "Have you had a reaction to this drug?"
  - d. "Are you taking this medication with meals?"

ANS: B

Asking “What medications do you take?” is an open-ended question that will encourage greater clarification and additional discussion with the patient. The other options are examples of closed-ended questions, which prompt only a “yes” or “no” answer and provide limited information.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

4. The nurse is setting up a teaching session with an 85-year-old patient who will be going home on anticoagulant therapy. Which educational strategy would reflect consideration of the age-related changes that may exist with this patient?
- Show a video about anticoagulation therapy.
  - Present all the information in one session just before discharge.
  - Give the patient pamphlets about the medications to read at home.
  - Develop large-print handouts that reflect the verbal information presented.

ANS: D

Developing large-print handouts addresses altered perception in two ways. First, by using visual aids to reinforce verbal instructions, one addresses the possibility of decreased ability to hear high-frequency sounds. By developing the handouts in large print, one addresses the possibility of decreased visual acuity. Showing a video does not allow discussion of the information; furthermore, the text and print may be small and difficult to read and understand. Presenting all the information in one session before discharge also does not allow for discussion, and the patient may not be able to hear or see the information sufficiently. Because of the possibility of decreased short-term memory and slowed cognitive function, simply giving pamphlets to read without other teaching strategies may not be appropriate.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

5. When the nurse teaches a skill such as self-injection of insulin to the patient, what is the best way to set up the teaching/learning session?
- Provide written pamphlets for instruction.
  - Show a video, and allow the patient to practice as needed on his own.
  - Verbally explain the procedure, and provide written handouts for reinforcement.
  - After demonstrating the procedure, allow the patient to do several return demonstrations.

ANS: D

Return demonstration allows the nurse to evaluate the patient’s newly learned skills. The techniques in the other options are incorrect because those suggestions do not allow for evaluation of the patient’s technique.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

6. A patient with a new prescription for a diuretic has just reviewed with the nurse how to include more potassium in her diet. This reflects learning in which domain?
- Cognitive
  - Affective
  - Physical
  - Psychomotor

ANS: A

The cognitive domain refers to problem-solving abilities and may involve recall and knowledge of facts. The affective domain refers to values and beliefs. The term *physical* does not refer to one of the learning domains. The psychomotor domain involves behaviors such as learning how to perform a procedure.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

7. During an admission assessment, the nurse discovers that the patient does not speak English. Which is considered the ideal resource for translation?
- A family member of the patient
  - A close family friend of the patient
  - A translator who does not know the patient
  - Prewritten note cards with both English and the patient's language

ANS: C

The nurse should communicate with the patient in the patient's native language if at all possible. If the nurse is not able to speak the patient's native language, a translator should be made available so as to prevent communication problems, minimize errors, and help boost the patient's level of trust and understanding of the nurse. In practice, this translator may be another nurse or health care professional, a nonprofessional member of the health care team, or a layperson, family member, adult friend, or religious leader or associate. However, it is best to avoid family members as translators, if possible, because of issues with bias, misinterpretation, and potential confidentiality issues.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

8. A 60-year-old patient is on several new medications and expresses worry that she will forget to take her pills. Which action by the nurse would be most helpful in this situation?
- Teaching effective coping strategies
  - Asking the patient's prescriber to reduce the number of drugs prescribed
  - Assuring the patient that she will not forget once she is accustomed to the routine
  - Assisting the patient with obtaining and learning to use a calendar or pill container

ANS: D

Calendars, pill containers, or diaries may be helpful to patients who may forget to take prescribed drugs as scheduled. The nurse must ensure that the patient knows how to use these reminder tools. Teaching coping strategies is a helpful suggestion but will not help with remembering to take medications. Asking the prescriber to reduce the number of drugs that are prescribed is not an appropriate action by the nurse. Assuring the patient that she will not forget is false reassurance by the nurse and inappropriate when education is needed.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## MULTIPLE RESPONSE

1. Which are appropriate considerations when the nurse is assessing the learning needs of a patient? (*Select all that apply.*)
  - a. Cultural background
  - b. Family history
  - c. Level of education
  - d. Readiness to learn
  - e. Health beliefs

ANS: A, C, D, E

Family history is not a part of what the nurse considers when assessing learning needs. The other options are appropriate to consider when the nurse is assessing learning needs.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. The nurse is teaching an older patient about the use of an incentive spirometer after surgery. Which of these age-related changes are appropriate for the nurse to consider when teaching older patients? (*Select all that apply.*)
  - a. Decreased sense of touch
  - b. Increased conduction of sound
  - c. Decreased cognitive function
  - d. Decreased short-term memory
  - e. Increased ability to concentrate

ANS: A, C, D

Age-related changes in older adults that may affect learning include a decreased sense of touch, decreased cognitive function, and decreased short-term memory. Sound conduction and ability to concentrate are also decreased. Refer to Table 6-1.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Psychosocial Integrity

## COMPLETION



1. A patient is to receive prednisone 7.5 mg PO daily. The tablets are available in a 2.5-mg strength. Identify how many tablets will the patient receive. \_\_\_\_\_

ANS:

3 tablets

1 tablet:2.5 mg ::  $x$  tablet:7.5 mg.

$(1 \times 7.5) = (2.5 \times x)$ ;  $7.5 = 2.5x$ ;  $x = 3$ ; therefore 7.5 mg = 3 tablets.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 07: Over-the-Counter Drugs and Herbal and Dietary Supplements**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. A 25-year-old woman is visiting the prenatal clinic and shares with the nurse her desire to go “natural” with her pregnancy. She shows the nurse a list of herbal remedies that she wants to buy so that she can “avoid taking any drugs.” Which statement by the nurse is correct?
  - a. “Most herbal remedies are not harmful and are safe for use during pregnancy.”
  - b. “Please read each label carefully before use to check for cautionary warnings.”
  - c. “Keep in mind that products from different manufacturers are required to contain consistent amounts of the herbal products.”
  - d. “It’s important to remember that herbal remedies do not have proven safety ratings for pregnant women.”

ANS: D

The fact that a drug is an herbal or a dietary supplement does not mean that it can be safely administered to children, infants, or pregnant or lactating women. Many herbal products have *not* been tested for safety during pregnancy. Simply reading the labels may not provide enough information for use during pregnancy. Last, manufacturers of herbal products are not required to guarantee the reliability of the contents.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

2. The nurse is giving a lecture about current U.S. laws and regulations of herbal products. According to the Dietary Supplement and Health Education Act of 1994, which statement is true?
  - a. Medicinal herbs are viewed as dietary supplements.
  - b. Herbal remedies are held to the same standards as drugs.
  - c. Producers of herbal products must prove therapeutic efficacy.
  - d. Herbal remedies are protected by patent laws.

ANS: A

Current U.S. laws view herbal products as dietary supplements and do not hold them to the same efficacy standards as drugs. The other options do not correctly reflect current U.S. laws regarding herbal supplements.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The patient wants to take the herbal product kava to help him rest at night. The nurse would be concerned about potential interactions if he is taking a medication from which class of drugs?
  - a. Digitalis
  - b. Anticoagulants
  - c. Sedatives
  - d. Immunosuppressants

ANS: C

Kava may cause increased central nervous system depression if used with sedatives. Digitalis, anticoagulants, and immunosuppressants do not have interactions with kava.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. The patient has been taking an over-the-counter (OTC) acid-reducing drug because he has had “stomach problems” for several months. He tells the nurse that the medicine helps as long as he takes it, but once he stops it, the symptoms return. Which statement by the nurse is the best advice for this patient?
- “The over-the-counter drug has helped you, so you should continue to take it.”
  - “The over-the-counter dosage may not be strong enough. You should be taking prescription-strength for best effects.”
  - “For best results, you need to watch what you eat in addition to taking this drug.”
  - “Using this drug may relieve your symptoms, but it does not address the cause. Please make an appointment with your health care provider.”

ANS: D

The use of OTC drugs may postpone effective management of chronic disease states and may delay treatment of serious or life-threatening disorders because these drugs may relieve symptoms without necessarily addressing the cause of the disorder. The other options do not address the need to investigate the cause of the symptoms and are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

5. During an assessment, the patient tells the nurse that he eats large amounts of garlic for its cardiovascular benefits. Which drug or drug class, if taken, would have a potential interaction with the garlic?
- Acetaminophen (Tylenol)
  - Insulin
  - Antilipemic drugs
  - Sedatives

ANS: B

The use of garlic may interfere with hypoglycemic drugs. The other options are incorrect because acetaminophen, antilipemic drugs, and sedatives do not have interactions with garlic.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. A patient calls the clinic to ask about taking cranberry dietary supplement capsules because a friend recommended them. The nurse will discuss which possible concern when a patient is taking cranberry supplements?
- It may increase the risk for bleeding if the patient is taking anticoagulants.
  - It may increase the risk of toxicity of some psychotherapeutic drugs.

- c. It may reduce elimination of drugs that are excreted by the kidneys.
- d. Cranberry may increase the intensity and duration of effects of caffeine.

ANS: C

The use of cranberry decreases the elimination of many drugs that are renally excreted. The other concerns do not occur with cranberry supplements.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

7. A patient wants to take the herb ginkgo to help his memory. The nurse reviews his current medication list and would be concerned about potential interactions if he is taking a medication from which class of drugs?
- a. Digitalis
  - b. Antiplatelet drugs
  - c. Sedatives
  - d. Immunosuppressants

ANS: B

The use of ginkgo increases the risk of bleeding with antiplatelet drugs (aspirin, clopidogrel) and anticoagulants (warfarin, heparin). The other concerns do not occur with ginkgo supplements.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## MULTIPLE RESPONSE

1. The nurse is conducting a class for senior citizens about the use of over-the-counter (OTC) drugs. Which statements are true regarding the use of OTC drugs? (*Select all that apply.*)
- a. Use of OTC drugs may delay treatment of serious ailments.
  - b. Drug interactions with OTC medications are rare.
  - c. OTC drugs may relieve symptoms without addressing the cause of the problem.
  - d. OTC drugs are indicated for long-term treatment of conditions.
  - e. Patients may misunderstand product labels and use the drugs improperly.

ANS: A, C, E

It is true that use of OTC drugs may delay treatment of serious ailments; OTC drugs may relieve symptoms without addressing the cause of the problem, and patients may misunderstand product labels and use the drugs improperly. These statements should be included when teaching patients about their use. In contrast, drug interactions with OTC medications are not rare and may indeed occur with prescription medications and other OTC drugs. Normally, OTC drugs are intended for short-term treatment of minor ailments.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is reviewing the criteria for over-the-counter drugs. Which criteria for over-the-counter status in the United States are accurate? (*Select all that apply.*)
- The drug must be easy to use.
  - The drug must have a low therapeutic index.
  - The consumer must be able to monitor the drug's effectiveness.
  - The drug must have a low potential for abuse.
  - The drug must not have any interactions with other drugs.

ANS: A, C, D

In the United States, criteria for over-the-counter status include the drug being easy to use, the drug having a low potential for abuse, and the consumer must be able to monitor the drug's effectiveness for the condition. The drug must have a high therapeutic index (not a low one), and the drug must have limited interactions with other drugs.

DIF: Cognitive Level: Applying (Application)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient with a PEG tube is to receive ferrous sulfate, 65 mg per the tube, daily. The medication is available as an elixir, 220 mg/5 mL. How many milliliters will the patient receive per dose? Record your answer using one decimal place.

ANS:

1.5 mL

220 mg:5 mL :: 65 mg:x mL

$(220 \times x) = (5 \times 65)$ ;  $220x = 325$ ;  $x = 1.477$  which rounds to 1.5 mL/dose

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 08: Gene Therapy and Pharmacogenomics**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. The nurse is reviewing the applications of gene therapy. Which drug is manufactured as a result of indirect gene therapy?
  - a. Vitamin K
  - b. Warfarin
  - c. Human insulin
  - d. Heparin

ANS: C

A recombinant form of human insulin is one of the most widespread uses of indirect gene therapy. Other examples include hormones, vaccines, antitoxins, and monoclonal antibodies. The other options listed are not examples of drugs manufactured by indirect gene therapy.

DIF: Cognitive Level: Remembering (Knowledge)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is discussing gene therapy in a continuing education class. Which is the best definition of eugenics?
  - a. The use of gene therapy to prevent disease
  - b. The development of new drugs based on gene therapy
  - c. Intentional selection, before birth, of genotypes that are considered more desirable than others
  - d. The determination of genetic factors that influence a person's response to medications

ANS: C

Eugenics is the intentional selection of genotypes, before birth, that are considered more desirable than others, and it is a major ethical issue concerning gene therapy. The other options do not describe eugenics.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological Therapies

3. The nurse is explaining the Human Genome Project to colleagues. Which of these is the main purpose of the Human Genome Project?
  - a. The study of genetic diseases.
  - b. The study of genetic traits in humans.
  - c. The discovery new genetic diseases.
  - d. To describe the entire genome of a human being.

ANS: D

The Human Genome Project was undertaken to describe in detail the entire genome of a human being. The other options do not describe the Human Genome Project.

DIF: Cognitive Level: Remembering (Knowledge)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

4. A patient has just been told that she has the genetic markers for a severe type of breast cancer. After the patient meets with the physician, the patient's daughter asks the nurse, "What did the doctor tell my mother? She seems upset." What is the nurse's best response?
- "I'm sorry, but I'm not allowed to discuss that."
  - "The physician will discuss this with you."
  - "It seems that your mother has the genetic markers for a type of breast cancer."
  - "This is information that your mother will need to discuss with you."

ANS: D

Maintaining privacy and confidentiality is of utmost importance during genetic testing and counseling. The patient (not the nurse or the physician) is the one who decides whether to include or exclude any family members from the discussion and from knowledge of the results of genetic testing. Telling the patient's daughter that you are "not allowed" to discuss the matter would cause more anxiety. Telling the daughter about the genetic markers would be a violation of the patient's privacy.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

5. The nurse is asking a patient about his family history as part of an assessment. Which component is included in an effective family history?
- Asking the patient about the current and past health status of the patient's children
  - Covering at least three generations of family history
  - Obtaining a family history of the patient's spouse
  - Asking about the family history for the patient's siblings and parents only

ANS: B

The family history is most effective if it covers at least three generations and includes the current and past health status of each family member. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Health Promotion and Maintenance

6. The nurse is reviewing principles of genetics. Which of these is a long strand of DNA that is contained within the nuclei of cells?
- Gene
  - Allele
  - Genome
  - Chromosome

ANS: D

A chromosome is a long strand of DNA that is contained in the nuclei of cells. DNA molecules, in turn, act as the template for the formation of RNA molecules, from which proteins are made. The other answers are incorrect.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process:

General

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

7. The nurse is asking a patient about his drug history, and the patient states, “Whenever I take any strong pain medications, I usually sleep for hours. I have no idea why that happens!” The nurse considers that which of these is true about this patient’s statement?
- The patient is exaggerating about a normal side effect of pain medications.
  - The patient’s reaction to pain medications may point to a difference in his ability to metabolize certain drugs.
  - The patient will need higher doses of medication for pain control.
  - The patient should never receive strong pain medications.

ANS: B

It is important to inquire about any unusual reactions to a drug—on the part of the patient, family members, significant others, and/or caregivers. An unusual or other than expected reaction to a drug in family members may point to a difference in the patient’s ability to metabolize certain drugs. Genetic factors may alter a patient’s metabolism of a particular drug, resulting in either increased or decreased drug action. The other statements are not correct.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

## MULTIPLE RESPONSE

1. The nurse is performing an assessment of a patient. Which assessment findings may indicate a higher risk for genetic disorders? (*Select all that apply.*)
- The patient’s father was diagnosed with heart disease at 60 years of age.
  - The patient’s mother was diagnosed with breast cancer at 33 years of age.
  - The patient’s grandfather died of a cerebral vascular accident at 78 years of age.
  - The patient’s sister has a history of both renal and lung cancer.
  - The patient has two uncles and a grandparent who have been diagnosed with Alzheimer’s disease.

ANS: B, D, E

The nurse should assess for factors that may indicate a risk for genetic disorders. A few examples of factors that may indicate a risk for genetic disorders are a higher incidence of a particular disease or disorder in the patient’s family than in the general population; diagnosis of a disease in family members at an unusually young age; or diagnosis of a family member with an unusual form of cancer or with more than one type of cancer. The options regarding heart disease at 60 years of age and cerebral vascular accident at 78 years of age are not factors that indicate a higher risk for genetic disorders.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. The nurse is preparing a class on gene therapy for a group of students. Which statements about gene therapy are true? (*Select all that apply.*)
- The FDA must review and approve all human clinical genetic trials.



- b. Gene therapy may involve creating new genes within a human.
- c. Gene therapy may involve replacing a mutated gene with a healthy copy of the gene.
- d. Some trials involve introducing a new gene into the body to help fight disease.
- e. Gene therapy may include inactivating a mutated gene that is not functioning properly.

ANS: A, C, D, E

Gene therapy may include: Replacing a mutated gene with a healthy copy of the gene; introducing a new gene into the body to help fight a disease; inactivating a mutated gene that is functioning improperly. In addition, the FDA must review and approve all human clinical genetic trials. Gene therapy does not include creating new genes.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## COMPLETION

1. A patient will be receiving ranitidine (Zantac) 150 mg twice a day. A liquid form is ordered because the patient cannot swallow pills or capsules; the concentration of the liquid is 15 mg/mL. How many milliliters will the patient receive per dose?

ANS:

10 mL per dose

15 mg:5 mL :: 150 mg:x mL

$(15 \times x) = (5 \times 150)$ ;  $15x = 150$ ;  $x = 10 \text{ mL/dose}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 09: Photo Atlas of Drug Administration

### Lilley: Pharmacology and the Nursing Process, 9th Edition

#### MULTIPLE CHOICE

- Before administering any medication, what is the nurse's priority action regarding patient safety?
  - Verifying orders with another nurse
  - Documenting the medications given
  - Counting medications in the medication cart drawers
  - Checking the patient's identification using two identifiers

ANS: D

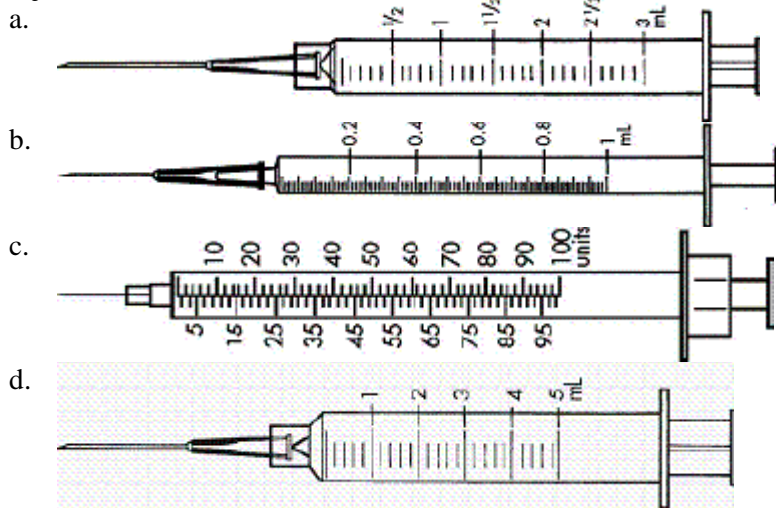
Verifying the patient's identity, using two identifiers, before administering any medication is essential for the patient's safety and reflects checking one of the "Nine Rights" of medication administration. Documentation is done after the medications are given.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

- The nurse is giving an intradermal (ID) injection and will choose which syringe for this injection?



ANS: B

The proper size syringe for ID injection is a 1-mL tuberculin. The other syringes pictured are incorrect. Insulin syringes (marked in units) are not used for intradermal injections.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process:

Planning

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

- A patient is to receive a penicillin intramuscular (IM) injection in the ventrogluteal site. The nurse will use which angle for the needle insertion?
  - 15 degrees
  - 45 degrees

- c. 60 degrees
- d. 90 degrees

ANS: D

The proper angle for IM injections is 90 degrees. The other angles are incorrect.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. When administering medication by IV bolus (push), the nurse will occlude the IV line by which method?
- a. Not pinching the IV tubing at all
  - b. Pinching the tubing just above the injection port
  - c. Pinching the tubing just below the injection port
  - d. Pinching the tubing just above the drip chamber of the infusion set

ANS: B

Before a medication is injected by IV push, the IV line is occluded by pinching the tubing just above the injection port. The other locations are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse has an order to administer an intramuscular (IM) immunization to a 2-month-old child. Which site is considered the best choice for this injection?
- a. Deltoid
  - b. Dorsogluteal
  - c. Ventrogluteal
  - d. Vastus lateralis

ANS: D

The vastus lateralis is the preferred site of injection of drugs such as immunizations for infants. The other sites are not appropriate for infants. The ventrogluteal site is the preferred site for adults and children. The deltoid site is used only for the administration of immunizations to toddlers, older children, and adults (not infants) and only for small volumes of medication. The dorsogluteal site is no longer recommended because of the possibility of nerve injury.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse needs to administer insulin subcutaneously to an obese patient. Which is the proper technique for this injection?
- a. Using the Z-track method
  - b. Inserting the needle at a 5- to 15-degree angle until resistance is felt
  - c. Pinching the skin at the injection site, and then inserting the needle to below the tissue fold at a 90-degree angle
  - d. Spreading the skin tightly over the injection site, inserting the needle, and then releasing the skin

ANS: C

The proper technique for a subcutaneous injection for an obese patient is to pinch the skin at the injection site and inject the needle to below the skin fold at a 90-degree angle.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse will plan to use the Z-track method of intramuscular (IM) injections for which situation?
- The medication is known to be irritating to tissues.
  - The patient is emaciated and has very little muscle mass.
  - The medication must be absorbed quickly into the tissues.
  - The patient is obese and has a deep fat layer below the muscle mass.

ANS: A

The Z-track method is used for medications known to irritate tissues or for medications that are painful or cause stains to the tissues. It also prevents the deposit of medication into more sensitive subcutaneous tissues. The other options are not appropriate situations for the Z-track method.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. After administering an intradermal (ID) injection for a skin test, the nurse notices a small bleb at the injection site. Which of these is the best action for the nurse to take at this time?
- Apply heat.
  - Massage the area.
  - Do nothing.
  - Report the bleb to the physician.

ANS: C

The formation of a small bleb is expected after an ID injection for skin testing. The other actions are not appropriate.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is administering an IV push medication through an IV lock. After injecting the medication, which action will be taken next?
- Flushing the lock
  - Regulating the IV flow
  - Clamping the tubing for 10 minutes
  - Holding the patient's arm up to improve blood flow

ANS: A

IV locks are to be flushed before and after each use; either heparin or saline flush is used, depending on the individual facility's policy. The other actions are not appropriate.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. When adding medications to a bag of intravenous (IV) fluid, the nurse will use which method to mix the solution?
- Shaking the bag or bottle vigorously
  - Turning the bag or bottle gently from side to side
  - Inverting the bag or bottle one time after injecting the medication
  - Allowing the IV solution to stand for 10 minutes to enhance even distribution of medication

ANS: B

When medications are added to IV fluid containers, the medication and the IV solution are mixed by holding the bag or bottle and turning it end-to-end, mixing it gently. Shaking vigorously is not appropriate; inverting the bag just once or simply allowing the bag to stand for 10 minutes may not be sufficient to mix the medication into the fluid.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. The nurse is measuring 4 mL of a liquid cough elixir for a child. Which method is most appropriate?
- Using a teaspoon to measure and administer
  - Holding the medication cup at eye level and filling it to the desired level
  - Withdrawing the elixir from the container using a syringe without a needle attached
  - Withdrawing the elixir from the container using a calibrated oral syringe

ANS: D

Small doses of liquid medications must be withdrawn using a calibrated oral syringe. A hypodermic syringe or a syringe with a needle or syringe cap must not be used. If hypodermic syringes are used, the drug may be inadvertently given parenterally, or the syringe cap or needle, if not removed from the syringe, may become dislodged and accidentally aspirated by the patient when the syringe plunger is pressed. The other methods are not accurate for small volumes.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. While the nurse is assisting a patient in taking his medications, the medication cup falls to the floor, spilling the tablets. What is the nurse's best action at this time?
- Discarding the medications and repeating preparation
  - Asking the patient if he will take the medications
  - Waiting until the next dose time, and then giving the medications
  - Retrieving the medications and administering them to avoid waste

ANS: A

Medications that fall to the floor must be discarded, and the procedure must be repeated with new medications. The other actions are not appropriate.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

13. When giving a buccal medication to a patient, which action by the nurse is appropriate?
- Encouraging the patient to swallow, if necessary
  - Administering water after the medication has been given
  - Placing the medication between the upper or lower molar teeth and the cheek
  - Placing the tablet under the patient's tongue and allowing it to dissolve completely

ANS: C

Buccal medications are properly administered between the upper or lower molar teeth and the cheek. Caution the patient against swallowing, and do not administer with water. Medications given under the tongue are sublingually administered.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

14. The nurse is giving liquid medications through a percutaneous endoscopic gastrostomy (PEG) tube. Which technique is correct?
- Administering the medications using a 3-mL medication syringe
  - Applying firm pressure on the syringe's piston to infuse the medication
  - Flushing the tubing with 30 mL of saline after the medication has been given
  - Using the barrel of the syringe, allowing the medication to flow via gravity into the tube

ANS: D

For PEG tubes (and nasogastric tubes), medications are poured into the barrel of the syringe with the piston removed, and the medication is allowed to flow via gravity into the tube. Fluid must never be forced into the tube. The tubing is to be flushed with 30 mL of tap water (not saline) to ensure that the medication is cleared from the tube after the medication has been given. A 3-mL syringe is too small for this procedure.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

15. The nurse is about to give a rectal suppository to a patient. Which technique would facilitate the administration and absorption of the rectal suppository?
- Having the patient lie on his or her right side, unless contraindicated
  - Having the patient hold his or her breath during insertion of the medication
  - Lubricating the suppository with a small amount of petroleum-based lubricant before insertion
  - Encouraging the patient to lie on his or her left side for 15 to 20 minutes after insertion

ANS: D

Position the patient on his or her left side for rectal suppository insertion. The suppository is then lubricated with a small amount of water-soluble lubricant, not petroleum-based substances. The patient is told to take a deep breath and exhale through the mouth during insertion. Then, the patient needs to remain lying on the left side for 15 to 20 minutes to allow absorption of the drug.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

16. A patient is receiving eyedrops that contain a beta-blocker medication. The nurse will use what method to reduce systemic effects after administering the eyedrops?
- Wiping off excess liquid immediately after instilling the drops
  - Having the patient close the eye tightly after the drops are instilled
  - Having the patient try to keep the eye open for 30 seconds after the drops are instilled
  - Applying gentle pressure to the patient's nasolacrimal duct for 30 to 60 seconds after instilling the drops

ANS: D

When administering ophthalmic drugs that may cause systemic effects, one's finger should be protected by a clean tissue or glove and gentle pressure applied to the patient's nasolacrimal duct for 30 to 60 seconds. The other actions are not appropriate.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

17. A 2-year-old child is to receive eardrops. The nurse is teaching the parent about giving the eardrops. Which statement reflects the proper technique for administering eardrops to this child?
- Administer the drops without pulling on the ear lobe.
  - Straighten the ear canal by pulling the lobe upward and back.
  - Straighten the ear canal by pulling the pinna down and back.
  - Straighten the ear canal by pulling the pinna upward and outward.

ANS: C

In an infant or a child younger than 3 years of age, the ear canal is straightened by pulling the pinna down and back. In adults, the pinna is pulled up and outward. Pulling the lobe and administering eardrops without pulling on the ear lobe are not appropriate actions.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

18. A patient with asthma is to begin medication therapy using a metered-dose inhaler. What is an important reminder to include during teaching sessions with the patient?
- Repeat subsequent puffs, if ordered, after 5 minutes.
  - Inhale slowly while pressing down to release the medication.
  - Inhale quickly while pressing down to release the medication.
  - Administer the inhaler while holding it 3 to 4 inches away from the mouth.

ANS: B

Position the inhaler to an open mouth, with the inhaler 1 to 2 inches away from the mouth, or attach a spacer to the mouthpiece of the inhaler, or place the mouthpiece in the mouth. To administer, press down on the inhaler to release the medication while inhaling slowly. Wait 1 to 2 minutes between puffs if a second puff of the same medication has been ordered.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

19. When giving medications, the nurse will use Standard Precautions, which include what action?
- Bending the needle to prevent reuse
  - Recapping needles to prevent needle sticks
  - Discarding all syringes and needles in the trash can
  - Discarding all syringes and needles in a puncture-resistant container

ANS: D

Standard Precautions include wearing clean gloves when there is potential exposure to a patient's blood or other body fluids; never recapping needles; never bending needles or syringes; and discarding all disposable syringes and needles in the appropriate puncture-resistant container.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

20. A patient says he prefers to chew rather than swallow his pills. One of the pills has the abbreviation *SR* behind the name of the medication. The nurse needs to remember which correct instruction regarding how to give this medication?
- Break the tablet into halves or quarters.
  - Dissolve the tablet in a small amount of water before giving it.
  - Do not crush or break the tablet before administration.
  - Crush the tablet as needed to ease administration.

ANS: C

Sustained-release (*SR*) and enteric-coated tablets or capsules are forms of medications that must not be crushed before administration so as to protect the gastrointestinal lining or the medication itself. Do not break, dissolve, or crush these tablets before administering.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

21. When administering nasal spray, which instruction by the nurse is appropriate?
- "You will need to blow your nose before I give this medication."
  - "You will need to blow your nose after I give this medication."
  - "When I give this medication, you will need to hold your breath."
  - "You need to sit up for 5 minutes after you receive the nasal spray."

ANS: A



Clear the nasal passages before receiving nasal spray. Blowing one's nose after receiving the medication will remove the medication from the nasal passages. The patient will receive the spray while inhaling through the open nostril and needs to remain in a supine position for 5 minutes afterward.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is preparing to give an aqueous intramuscular (IM) injection to an average-sized adult. Which actions are appropriate? (*Select all that apply.*)
  - a. Choose a 26- or 27-gauge, 1/4- to 1/2-inch needle.
  - b. Choose a 20- to 25-gauge, 1- to 1 1/2-inch needle.
  - c. Choose the dorsogluteal site, the preferred site for IM injections for adults.
  - d. Insert the needle at a 45-degree angle.
  - e. Insert the needle at a 90-degree angle.
  - f. Before injecting the medication, withdraw the plunger to check for blood return.

ANS: B, E, F

In general, aqueous medications can be given with a 20- to 25-gauge needle, and average needle lengths for adults range from 1 to 1 1/2 inches. Insert the needle at a 90-degree angle. Checking for blood return is also part of the technique for IM injections to prevent inadvertent administration into the bloodstream. The ventrogluteal site is the preferred site for IM injections in adults. The dorsogluteal site is to be avoided because of proximity to nerves and blood vessels.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient is to receive hydromorphone (Dilaudid) 1.5 mg IV push now. The medication comes in a prefilled syringe, 2 mg/mL. Identify how many milliliters the nurse will administer for this dose. \_\_\_\_\_

ANS:

0.75 mL

2 mg:1 mL :: 1.5 mg:x mL

$(2 \times x) = (1 \times 1.5)$ ;  $2x = 1.5$ ;  $x = 0.75$ ; administer 0.75 mL

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 10: Analgesic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient was diagnosed with pancreatic cancer last month, and has complained of a dull ache in the abdomen for the past 4 months. This pain has been gradually increasing, and the pain relievers taken at home are no longer effective. What type of pain is the patient experiencing?
  - a. Acute pain
  - b. Chronic pain
  - c. Somatic pain
  - d. Neuropathic pain

ANS: B

Chronic pain is associated with cancer and is characterized by slow onset, long duration, and dull, persistent aching. The patient's symptoms are not characteristics of acute pain, somatic pain, or neuropathic pain.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

2. A 16-year-old field hockey player fell and twisted her ankle during a game. The nurse will expect to administer which type of analgesic?
  - a. Synthetic opioid, such as meperidine (Demerol)
  - b. Opium alkaloid, such as morphine sulfate
  - c. Opioid antagonist, such as naloxone HCL (Narcan)
  - d. Nonopioid analgesics, such as indomethacin (Indocin)

ANS: D

Somatic pain, which originates from skeletal muscles, ligaments, and joints, usually responds to nonopioid analgesics such as nonsteroidal anti-inflammatory drugs (NSAIDs). The other options are not the best choices for somatic pain.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

3. A patient had abdominal surgery this morning. The patient is groggy but complaining of severe pain around the incision. What is the most important assessment data to consider before the nurse administers a dose of morphine sulfate to the patient?
  - a. The patient's pulse rate
  - b. The patient's respiratory rate
  - c. The appearance of the incision
  - d. The date of the patient's last bowel movement

ANS: B

One of the most serious adverse effects of opioids is respiratory depression. The nurse must assess the patient's respiratory rate before administering an opioid. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. A 78-year-old patient is in the recovery room after having a lengthy surgery on his hip. As he is gradually awakening, he requests pain medication. Within 10 minutes after receiving a dose of morphine sulfate, he is very lethargic and his respirations are shallow, with a rate of 7 breaths/minute. The nurse prepares for which priority action at this time?
- Assessment of the patient's pain level
  - Immediate intubation and artificial ventilation
  - Administration of naloxone (Narcan)
  - Close observation of signs of opioid tolerance

ANS: C

Naloxone, an opioid-reversal agent, is used to reverse the effects of acute opioid overdose and is the drug of choice for reversal of opioid-induced respiratory depression. This situation is describing an opioid overdose, not opioid tolerance. Intubation and artificial ventilation are not appropriate because the patient is still breathing at 7 breaths/min. It would be inappropriate to assess the patient's level of pain.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient will be discharged with a 1-week supply of an opioid analgesic for pain management after abdominal surgery. The nurse will include which information in the teaching plan?
- How to prevent dehydration due to diarrhea
  - The importance of taking the drug only when the pain becomes severe
  - How to prevent constipation
  - The importance of taking the drug on an empty stomach

ANS: C

Gastrointestinal (GI) adverse effects, such as nausea, vomiting, and constipation, are the most common adverse effects associated with opioid analgesics. Physical dependence usually occurs in patients undergoing long-term treatment. Diarrhea is not an effect of opioid analgesics. Taking the dose with food may help minimize GI upset.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. A patient has been treated for lung cancer for 3 years. Over the past few months, the patient has noticed that the opioid analgesic is not helping as much as it had previously and more medication is needed for the same pain relief. The nurse is aware that this patient is experiencing which of these?
- Opioid addiction

- b. Opioid tolerance
- c. Opioid toxicity
- d. Opioid abstinence syndrome

ANS: B

Opioid tolerance is a common physiologic result of long-term opioid use. Patients with opioid tolerance require larger doses of the opioid agent to maintain the same level of analgesia. This situation does not describe toxicity (overdose), addiction, or abstinence syndrome (withdrawal).

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A 38-year-old man has come into the urgent care center with severe hip pain after falling from a ladder at work. He says he has taken several pain pills over the past few hours but cannot remember how many he has taken. He hands the nurse an empty bottle of acetaminophen (Tylenol). The nurse is aware that the most serious toxic effect of acute acetaminophen overdose is which condition?
- a. Tachycardia
  - b. Central nervous system depression
  - c. Hepatic necrosis
  - d. Nephropathy

ANS: C

Hepatic necrosis is the most serious acute toxic effect of an acute overdose of acetaminophen. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

8. A 57-year-old woman being treated for end-stage breast cancer has been using a transdermal opioid analgesic as part of the management of pain. Lately, she has been experiencing breakthrough pain. The nurse expects this type of pain to be managed by which of these interventions?
- a. Administering NSAIDs
  - b. Administering an immediate-release opioid
  - c. Changing the opioid route to the rectal route
  - d. Making no changes to the current therapy

ANS: B

If a patient is taking long-acting opioid analgesics, breakthrough pain must be treated with an immediate-release dosage form that is given between scheduled doses of the long-acting opioid. The other options are not appropriate actions.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is reviewing herbal therapies. Which is a common use of the herb feverfew?
- a. Muscle aches

- b. Menstrual cramps
- c. Joint pain
- d. Incision pain after surgery

ANS: B

Feverfew is commonly used for migraine headaches, menstrual problems, arthritis, and fever. Possible adverse effects include muscle stiffness and muscle and joint pain.

DIF: Cognitive Level: Remembering (Knowledge)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient is to receive acetylcysteine (Mucomyst) as part of the treatment for an acetaminophen (Tylenol) overdose. Which action by the nurse is appropriate when giving this medication?
- a. Giving the medication undiluted for full effect
  - b. Avoiding the use of a straw when giving this medication
  - c. Disguising the flavor with soda or flavored water
  - d. Preparing to give this medication via a nebulizer

ANS: C

Acetylcysteine has the flavor of rotten eggs and so is better tolerated if it is diluted and disguised by mixing with a drink such as cola or flavored water to help increase its palatability. The use of a straw helps to minimize contact with the mucous membranes of the mouth and is recommended. The nebulizer form of this medication is used for certain types of pneumonia, not for acetaminophen overdose.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient is receiving gabapentin (Neurontin), an anticonvulsant, but has no history of seizures. The nurse expects that the patient is receiving this drug for which condition?
- a. Inflammation pain
  - b. Pain associated with peripheral neuropathy
  - c. Depression associated with chronic pain
  - d. Prevention of seizures

ANS: B

Anticonvulsants are often used as adjuvants for treatment of neuropathic pain to enhance analgesic efficacy. The other indications listed are not correct.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. The nurse is assessing a patient who has been admitted to the emergency department for a possible opioid overdose. Which assessment finding is characteristic of an opioid drug overdose?
- a. Dilated pupils
  - b. Restlessness
  - c. Respiration rate of 6 breaths/min

- d. Heart rate of 55 beats/min

ANS: C

The most serious adverse effect of opioid use is CNS depression, which may lead to respiratory depression. Pinpoint pupils, not dilated pupils, are seen. Restlessness and a heart rate of 55 beats/min are not indications of an opioid overdose.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

13. The drug nalbuphine (Nubain) is an agonist-antagonist (partial agonist). The nurse understands that which is a characteristic of partial agonists?
- a. They have anti-inflammatory effects.
  - b. They are given to reverse the effects of opiates.
  - c. They have a higher potency than agonists.
  - d. They have a lower dependency potential than agonists.

ANS: D

Partial agonists such as nalbuphine are similar to the opioid agonists in terms of their therapeutic indications; however, they have a lower risk of misuse and addiction. They do not have anti-inflammatory effects, nor are they given to reverse the effects of opiates. They do not have a higher potency than agonists.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

14. The nurse is assessing a patient for contraindications to drug therapy with acetaminophen (Tylenol). Which patient should not receive acetaminophen?
- a. A patient with a fever of 101° F (38.3° C)
  - b. A patient who is complaining of a mild headache
  - c. A patient with a history of liver disease
  - d. A patient with a history of peptic ulcer disease

ANS: C

Liver disease is a contraindication to the use of acetaminophen. Fever and mild headache are both possible indications for the medication. Having a history of peptic ulcer disease is not a contraindication.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

15. A patient arrives at the urgent care center complaining of leg pain after a fall when rock climbing. The radiographs show no broken bones, but he has a large bruise on his thigh. The patient says he drives a truck and does not want to take anything strong because he needs to stay awake. Which statement by the nurse is most appropriate?
- a. "It would be best for you not to take anything if you are planning to drive your truck."
  - b. "We will discuss with your doctor about taking an opioid because that would work best for your pain."

- c. “You can take acetaminophen, also known as Tylenol, for pain, but no more than 1000 mg per day.”
- d. “You can take acetaminophen, also known as Tylenol, for pain, but no more than 3000 mg/day.”

ANS: D

Acetaminophen is indicated for mild-to-moderate pain and does not cause drowsiness, as an opioid would. Currently, the maximum daily amount of acetaminophen is 3000 mg/day. The 1000-mg amount per day is too low. Telling the patient not to take any pain medications is incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

16. A patient is suffering from tendonitis of the knee. The nurse is reviewing the patient’s medication administration record and recognizes that which adjuvant medication is most appropriate for this type of pain?
- a. Antidepressant
  - b. Anticonvulsant
  - c. Corticosteroid
  - d. Local anesthesia

ANS: C

Corticosteroids have an anti-inflammatory effect, which may help to reduce pain. The other medications do not have anti-inflammatory properties.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The opioid Vicodin (acetaminophen/hydrocodone) is prescribed for a patient who has had surgery. The nurse informs the patient that which common adverse effects can occur with this medication? (*Select all that apply.*)
- a. Diarrhea
  - b. Constipation
  - c. Lightheadedness
  - d. Nervousness
  - e. Urinary retention
  - f. Itching

ANS: B, C, E, F

Constipation (not diarrhea), lightheadedness (not nervousness), urinary retention, and itching are some of the common adverse effects that the patient may experience while taking opioids such as Vicodin.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological Therapies

## COMPLETION

1. A patient is to receive methadone (Dolophine) 2.5 mg intramuscularly (IM) now. The medication is available in a concentration of 10 mg/mL. Identify how many milliliters of methadone will be drawn up for this dose. \_\_\_\_\_

ANS:

0.25 mL

10 mg: 1 mL:: 2.5 mg: 1 mL

$(10 \times x) = (2.5 \times 1)$ ;  $10x = 2.5$ ;  $x = 0.25$  mg

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



## **Chapter 11: General and Local Anesthetics**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. During a fishing trip, a patient pierced his finger with a large fishhook. He is now in the emergency department to have it removed. The nurse anticipates that which type of anesthesia will be used for this procedure?
  - a. No anesthesia
  - b. Topical benzocaine spray on the area
  - c. Topical prilocaine/lidocaine (EMLA) cream around the site
  - d. Infiltration of the puncture wound with lidocaine

ANS: D

Infiltration anesthesia is commonly used for minor surgical procedures. It involves injecting the local anesthetic solution intradermally, subcutaneously, or submucosally across the path of nerves supplying the area to be anesthetized. The local anesthetic may be administered in a circular pattern around the operative field. The other types are not appropriate for this injury. This is a painful procedure; therefore, the option of “no anesthesia” is incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. While monitoring a patient who had surgery under general anesthesia 2 hours ago, the nurse notes a sudden elevation in body temperature. This finding may be an indication of which problem?
  - a. Tachyphylaxis
  - b. Postoperative infection
  - c. Malignant hypertension
  - d. Malignant hyperthermia

ANS: D

A sudden elevation in body temperature during the postoperative period may indicate the occurrence of malignant hyperthermia, a life-threatening emergency. The elevated temperature does not reflect the other problems listed.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

3. When assessing patients in the preoperative area, the nurse knows that which patient is at a higher risk for an altered response to anesthesia?
  - a. The 21-year-old patient who has never had surgery before
  - b. The 35-year-old patient who stopped smoking 8 years ago
  - c. The 40-year-old patient who is to have a kidney stone removed
  - d. The 82-year-old patient who is to have gallbladder removal

ANS: D

The elderly patient is more affected by anesthesia than the young or middle-aged adult patient because of the effects of aging on the hepatic, cardiac, respiratory, and renal systems.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. The nurse is caring for a patient who is on a ventilator for respiratory arrest. Which parenteral anesthetic is also used for sedation during mechanical ventilation in ICU settings?
- Ketamine
  - Midazolam (Versed)
  - Propofol (Diprivan)
  - Sevoflurane (Ultane)

ANS: C

Propofol is parenteral general anesthetic used for the induction and maintenance of general anesthesia and also for sedation during mechanical ventilation in intensive care unit (ICU) settings. Ketamine is used for both general anesthesia and moderate sedation. Midazolam is a short-acting benzodiazepine used for moderate sedation; sevoflurane is an inhaled anesthetic.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. When administering a neuromuscular blocking drug, the nurse needs to remember which principle?
- It is used instead of general anesthesia during surgery.
  - Only skeletal muscles are paralyzed; respiratory muscles remain functional.
  - It causes sedation and pain relief while allowing for lower doses of anesthetics.
  - Artificial mechanical ventilation is required because of paralyzed respiratory muscles.

ANS: D

Patients receiving neuromuscular blocking drugs require artificial mechanical ventilation because of the resultant paralysis of the respiratory muscles. In addition, they do not cause sedation or pain relief. They are used along with, not instead of, general anesthesia during surgery.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient is being prepared for an oral endoscopy, and the nurse anesthetist reminds him that he will be awake during the procedure but probably will not remember it. What type of anesthetic technique is used in this situation?
- Local anesthesia
  - Moderate sedation
  - Topical anesthesia

d. Spinal anesthesia

ANS: B

Moderate sedation effectively reduces patient anxiety, sensitivity to pain, and recall of the medical procedure, yet it preserves a patient's ability to maintain his or her own airway and respond to verbal commands. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. During the immediate postoperative period, the Post Anesthesia Care Unit nurse is assessing a patient who had hip surgery. The patient is experiencing tachycardia, tachypnea, and muscle rigidity, and his temperature is 103° F (39.4° C). The nurse will prepare for what immediate treatment?
- Naltrexone hydrochloride (Narcan) injection, an opioid reversal drug
  - Dantrolene (Dantrium) injection, a skeletal muscle relaxant
  - An anticholinesterase drug, such as neostigmine
  - Cardiopulmonary resuscitation (CPR) and intubation

ANS: B

Tachycardia, tachypnea, muscle rigidity, and raised temperature are symptoms of malignant hyperthermia, which is treated with cardiorespiratory supportive care as needed to stabilize heart and lung function as well as with immediate treatment with the skeletal muscle relaxant dantrolene. CPR is not immediately needed because the patient still has a pulse and respirations. Naltrexone hydrochloride and anticholinesterase drugs are not appropriate in this situation.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is preparing to administer dexmedetomidine (Precedex) to a patient. Which is an appropriate indication for dexmedetomidine? (*Select all that apply.*)
- Procedural sedation
  - Surgeries of short duration
  - Surgeries of long duration
  - Postoperative anxiety
  - Sedation of mechanically ventilated patients

ANS: A, B, E

Dexmedetomidine (Precedex) is used for procedural sedation and for surgeries of short duration, and it is also used in the intensive care setting for sedation of mechanically ventilated patients. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is reviewing the effects of inhaled and intravenous general anesthesia, which includes which of these? (*Select all that apply.*)
- a. Increased intracranial pressure
  - b. Increased glomerular filtration
  - c. CNS depression
  - d. Hypotension
  - e. Decreased hepatic clearance

ANS: A, C, D, E

Effects of inhaled and intravenous general anesthesia include increased intracranial pressure, CNS depression, hypotension, decreased hepatic clearance, and other effects listed in Table 11-4. Glomerular filtration is decreased, not increased.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient is to receive midazolam (Versed) 2 mg IV push over 2 minutes just before an endoscopy procedure. The medication is available in a strength of 1 mg/mL. Identify how many milliliters of medication will the nurse draw up into the syringe for this dose.
- \_\_\_\_\_

ANS:

2 mL

1 mg:1 mL :: 2 mg:x mL

$(1 \times x) = (1 \times 2)$ ;  $1x = 2$ ;  $x = 2$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 12: Central Nervous System Depressants and Muscle Relaxants**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. A patient who has received some traumatic news is panicking and asks for some medication to help settle down. The nurse anticipates giving which drug that is most appropriate for this situation?
  - a. Diazepam (Valium)
  - b. Zolpidem (Ambien)
  - c. Phenobarbital
  - d. Cyclobenzaprine (Flexeril)

ANS: A

Benzodiazepines such as diazepam are used as anxiolytics, or sedatives. Zolpidem is used as a hypnotic for sleep. Phenobarbital is not used as an anxiolytic but is used for seizure control. Cyclobenzaprine is a muscle relaxant and is not used to reduce anxiety.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient has been taking phenobarbital for 2 weeks as part of his therapy for epilepsy. He tells the nurse that he feels tense and that “the least little thing” bothers him now. Which is the correct explanation for this problem?
  - a. These are adverse effects that usually subside after a few weeks.
  - b. The drug must be stopped immediately because of possible adverse effects.
  - c. This drug causes the rapid eye movement (REM) sleep period to increase, resulting in nightmares and restlessness.
  - d. This drug causes deprivation of REM sleep and may cause the inability to deal with normal stress.

ANS: D

Barbiturates such as phenobarbital deprive people of REM sleep, which can result in agitation. Rebound phenomenon occurs when the drug is stopped (not during therapy), and the proportion of REM sleep increases, sometimes resulting in nightmares. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

3. A 50-year-old man who has been taking phenobarbital for 1 week is found very lethargic and unable to walk after eating out for dinner. His wife states that he has no other prescriptions and that he did not take an overdose—the correct number of pills is in the bottle. The nurse suspects that which of these may have happened?
  - a. He took a multivitamin.
  - b. He drank a glass of wine.
  - c. He took a dose of aspirin.
  - d. He developed an allergy to the drug.

ANS: B

Alcohol has an additive effect when combined with barbiturates and causes central nervous system (CNS) depression. Multivitamins and aspirin do not interact with barbiturates, and this situation does not illustrate an allergic reaction.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient has been taking temazepam (Restoril) for intermittent insomnia. She calls the nurse to say that when she takes it, she sleeps well, but the next day she feels “so tired.” Which explanation by the nurse is correct?
- “Long-term use of this drug results in a sedative effect.”
  - “If you take the drug every night, this hangover effect will be reduced.”
  - “These drugs affect the sleep cycle, resulting in daytime sleepiness.”
  - “These drugs increase the activity of the central nervous system, making you tired the next day.”

ANS: C

Benzodiazepines suppress REM sleep to a degree (although not as much as barbiturates) and, thus, result in daytime sleepiness (a hangover effect). The other statements are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

5. A patient is taking flurazepam (Dalmane) three to four nights a week for sleeplessness. She is concerned that she cannot get to sleep without taking the medication. What nonpharmacologic measures should the nurse suggest to promote sleep for this patient?
- Providing a quiet environment
  - Exercising before bedtime to become tired
  - Consuming heavy meals in the evening to promote sleepiness
  - Drinking hot tea or coffee just before bedtime

ANS: A

Nonpharmacologic approaches to induce sleep include providing a quiet environment, avoiding heavy exercise before bedtime, avoiding heavy meals late in the evening, and drinking warm decaffeinated drinks, such as warm milk, before bedtime.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

6. A patient is brought to the emergency department for treatment of a suspected overdose. The patient was found with an empty prescription bottle of a barbiturate by his bedside. He is lethargic and barely breathing. The nurse would expect which immediate intervention?
- Starting an intravenous infusion of diluted bicarbonate solution
  - Administering medications to increase blood pressure
  - Implementing measures to maintain the airway and support respirations
  - Administering naloxone (Narcan) as an antagonist

ANS: C

There are no antagonists/antidotes for barbiturates. Treatment supports respirations and maintains the airway. The other interventions are not appropriate.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. Ramelteon (Rozerem) is prescribed for a patient with insomnia. The nurse checks the patient's medical history, knowing that this medication is contraindicated in which disorder?
- Coronary artery disease
  - Renal insufficiency
  - Liver disease
  - Anemia

ANS: C

Ramelteon is contraindicated in cases of severe liver dysfunction. The other conditions are not contraindications.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse notes in the patient's medication history that the patient is taking cyclobenzaprine (Flexeril). Based on this finding, the nurse interprets that the patient has which disorder?
- A musculoskeletal injury
  - Insomnia
  - Epilepsy
  - Agitation

ANS: A

Cyclobenzaprine (Flexeril) is the muscle relaxant most commonly used to reduce spasms following musculoskeletal injuries. It is not appropriate for insomnia, epilepsy, or agitation.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient has experienced insomnia for months, and the physician has prescribed a medication to help with this problem. The nurse expects which drug to be used for long-term treatment of insomnia?
- Secobarbital (Seconal), a barbiturate
  - Diazepam (Valium), a benzodiazepine
  - Midazolam (Versed), a benzodiazepine
  - Eszopiclone (Lunesta), a nonbenzodiazepine sleep aid

ANS: D

Eszopiclone (Lunesta) is one of the newest prescription hypnotics to be approved for long-term use in treatment of insomnia. Barbiturates and benzodiazepines are not appropriate for long-term treatment of insomnia; midazolam is used for procedural (moderate) sedation.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient tells the nurse that he likes to drink kava herbal tea to help him relax. Which statement by the patient indicates that additional teaching about this herbal product is needed?
- "I will not drink wine with the kava tea."
  - "If I notice my skin turning yellow, I will stop taking the tea."
  - "I will not take sleeping pills if I have this tea in the evening."
  - "I will be able to drive my car after drinking this tea."

ANS: D

Patients should not drive after drinking this tea because it may cause sedation. Kava tea may cause skin discoloration (with long-term use). In addition, it must not be taken with alcohol, barbiturates, and psychoactive drugs.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## MULTIPLE RESPONSE

1. The nurse is preparing to administer a barbiturate. Which conditions or disorders would be a contraindication to the use of these drugs? (*Select all that apply.*)
- Gout
  - Pregnancy
  - Epilepsy
  - Severe chronic obstructive pulmonary disease
  - Severe liver disease
  - Diabetes mellitus

ANS: B, D, E

Contraindications to barbiturates include pregnancy, significant respiratory difficulties, and severe liver or renal disease. The other disorders are not contraindications.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The barbiturate phenobarbital is prescribed for a patient with epilepsy. While assessing the patient's current medications, the nurse recognizes that interactions may occur with which drugs? (*Select all that apply.*)
- Antihistamines
  - Opioids
  - Diuretics



- d. Anticoagulants
- e. Oral contraceptives
- f. Insulin

ANS: A, B, D, E

The co-administration of barbiturates and alcohol, antihistamines, benzodiazepines, opioids, and tranquilizers may result in additive CNS depression. Co-administration of anticoagulants and barbiturates can result in decreased anticoagulation response and possible clot formation. Co-administration of barbiturates and oral contraceptives can result in accelerated metabolism of the contraceptive drug and possible unintended pregnancy. There are no interactions with diuretics and insulin.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological Therapies

## COMPLETION

1. A patient is about to receive pentobarbital (Nembutal) 100 mg IV as preoperative sedation. The medication is available in a concentration of 50 mg/mL. How many milliliters will the patient receive for this dose?

ANS:

2 mL

50 mg:1 mL :: 100 mg: $x$  mL

$(50 \times x) = (1 \times 100)$ ;  $50x = 100$ ;  $x = 2$  mL

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 13: Central Nervous System Stimulants and Related Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. A patient is receiving instructions regarding the use of caffeine. The nurse shares that caffeine should be used with caution if which of these conditions is present?
  - a. A history of peptic ulcers
  - b. Migraine headaches
  - c. Asthma
  - d. A history of kidney stones

ANS: A

Caffeine should be used with caution by patients who have histories of peptic ulcers or cardiac dysrhythmias or who have recently had myocardial infarctions. The other conditions are not contraindications to the use of caffeine.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient who started taking orlistat (Xenical) 1 month ago calls the clinic to report some “embarrassing” adverse effects. She tells the nurse that she has had episodes of “not being able to control my bowel movements.” Which statement is true about this situation?
  - a. These are expected adverse effects that will eventually diminish.
  - b. The patient will need to stop this drug immediately if these adverse effects are occurring.
  - c. The patient will need to increase her fat intake to prevent these adverse effects.
  - d. The patient will need to restrict fat intake to less than 30% of total calories to help reduce these adverse effects.

ANS: D

Restricting dietary intake of fat to less than 30% of total calories can help reduce some of the GI adverse effects, which include oily spotting, flatulence, and fecal incontinence. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

3. A 6-year-old boy has been started on an extended-release form of methylphenidate hydrochloride (Ritalin) for the treatment of attention deficit hyperactivity disorder (ADHD). During a follow-up visit, his mother tells the nurse that she has been giving the medication at bedtime so that it will be “in his system” when he goes to school the next morning. What is the nurse’s appropriate evaluation of the mother’s actions?
  - a. She is giving him the medication dosage appropriately.
  - b. The medication should not be taken until he is at school.
  - c. The medication should be taken with meals for optimal absorption.
  - d. The medication should be given 4 to 6 hours before bedtime to diminish insomnia.

ANS: D

Central nervous system stimulants should be taken 4 to 6 hours before bedtime to decrease insomnia. Generally speaking, once-a-day dosing is used with extended-release or long-acting preparations. These formulations eliminate the need to take this medication at school.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

4. A 22-year-old nursing student has been taking NoDoz (caffeine) tablets for the past few weeks to “make it through” the end of the semester and exam week. She is in the university clinic today because she is “exhausted.” What human needs statement may be appropriate for her?
- Altered oxygenation need
  - Altered physical activity
  - Altered need for sleep
  - Altered food intake

ANS: C

The main ingredient in NoDoz, caffeine, is a central nervous system stimulant that can be used to increase mental alertness. Restlessness, anxiety, and insomnia are common adverse effects. Thus, altered need for sleep is the most appropriate human needs statement of those listed.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

5. A 10-year-old patient will be started on methylphenidate hydrochloride (Ritalin) therapy. The nurse will perform which essential baseline assessment before this drug is started?
- Eye examination
  - Height and weight
  - Liver function studies
  - Hearing test

ANS: B

Assessment of baseline height and weight is important before beginning Ritalin therapy because it may cause a temporary slowing of growth in prepubertal children. The other studies are not as essential at this time.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. When evaluating a patient who is taking orlistat (Xenical), which is an intended therapeutic effect?
- Increased wakefulness
  - Increased appetite
  - Decreased weight
  - Decreased hyperactivity

ANS: C

Orlistat (Xenical) is a nonstimulant drug that is used as part of a weight loss program. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is teaching a patient how to self-administer triptan injections for migraine headaches. Which statement by the patient indicates that he needs further teaching?
- “I will take this medication regularly to prevent a migraine headache from occurring.”
  - “I will take this medication when I feel a migraine headache starting.”
  - “This medication will not reduce the number of migraines I will have.”
  - “I will keep a journal to record the headaches I have and how the injections are working.”

ANS: A

Although they may be taken during aura symptoms by patients who have auras with their headaches, these drugs are not indicated for *preventive* migraine therapy. The medication is intended to relieve the migraine and not to prevent it or to reduce the number of attacks. The triptans do not reduce the number of migraines a person will have. Journal recordings of headaches and the patient’s responses to the medication are helpful.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is reviewing the use of central nervous system stimulants. Which of these are indications for this class of drugs? (*Select all that apply.*)
- Narcolepsy
  - Depression
  - Panic attacks
  - Neonatal apnea
  - Attention deficit hyperactivity disorder (ADHD)
  - Appetite suppression

ANS: A, D, E, F

Central nervous system stimulants can be used for narcolepsy, neonatal apnea, ADHD, and appetite suppression in the treatment of obesity. They are not used for depression and panic attacks.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient has a new prescription for phentermine (Ionamin) as part of the treatment for weight loss. Which information will the nurse include when teaching this patient about a stimulant such as phentermine? (*Select all that apply.*)

- a. Take this medication after meals.
- b. Take this medication in the morning.
- c. This drug is taken along with supervised exercise and suitable diet.
- d. Use mouth rinses, sugarless gum, or hard candies to minimize dry mouth.
- e. Avoid foods that contain caffeine, such as coffee, tea, and colas.

ANS: B, C, D, E

This drug should be taken in the morning to avoid interference with sleep, and the patient should also be on a supervised exercise and dietary regime. Caffeine-containing products should be avoided because of possible additional stimulation. Dry mouth can be minimized by the use of mouth rinses, sugarless gum, or hard candy. The other option is incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. The order reads, "Give atomoxetine (Strattera) 0.5 mg/kg/day once daily in the morning before school." The child weighs 88 pounds. Identify how many milligrams will be administered per dose. \_\_\_\_\_

ANS:

20 mg

$88 \text{ pounds} \div 2.2 = 40 \text{ kg}$

$0.5 \text{ mg/kg/day} \times 40 \text{ kg} = 20 \text{ mg/day}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 14: Antiepileptic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is reviewing the dosage schedule for several different antiepileptic drugs (AEDs). Which antiepileptic drug allows for once-a-day dosing?
  - a. Levetiracetam (Keppra)
  - b. Phenobarbital
  - c. Valproic acid (Depakote)
  - d. Gabapentin (Neurontin)

ANS: B

Phenobarbital has the longest half-life of all standard AEDs, including those listed in the other options; therefore, it allows for once-a-day dosing.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse has given medication instructions to a patient receiving phenytoin (Dilantin). Which statement by the patient indicates that the patient has an adequate understanding of the instructions?
  - a. "I will need to take extra care of my teeth and gums while on this medication."
  - b. "I can go out for a beer while on this medication."
  - c. "I can skip doses if the side effects bother me."
  - d. "I will be able to stop taking this drug once the seizures stop."

ANS: A

Thorough dental care is necessary to prevent gingival hypertrophy during therapy with phenytoin. Alcohol and other central nervous system depressants may cause severe sedation. Consistent dosing is important to maintain therapeutic drug levels. Therapy with AEDs usually must continue for life and must not be stopped once seizures stop.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

3. When teaching a patient about taking a newly prescribed antiepileptic drug (AED) at home, the nurse will include which instruction?
  - a. "Driving is allowed after 2 weeks of therapy."
  - b. "If seizures recur, take a double dose of the medication."
  - c. "Antacids can be taken with the AED to reduce gastrointestinal adverse effects."
  - d. "Take the drug at the same time every day."

ANS: D

Consistent dosing, taken regularly at the same time of day, at the recommended dose, and with meals to reduce the common gastrointestinal adverse effects, is the key to successful management of seizures when taking AEDs. The other options are not correct statements.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

4. A patient has a 9-year history of a seizure disorder that has been managed well with oral phenytoin (Dilantin) therapy. He is to be NPO (consume nothing by mouth) for surgery in the morning. What will the nurse do about his morning dose of phenytoin?
- Give the same dose intravenously.
  - Give the morning dose with a small sip of water.
  - Contact the prescriber for another dosage form of the medication.
  - Notify the operating room that the medication has been withheld.

ANS: C

If there are any questions about the medication order or the medication prescribed, contact the prescriber immediately for clarification and for an order of the appropriate dose form of the medication. Do not change the route without the prescriber's order. There is an increased risk of seizure activity if one or more doses of the AED are missed.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse is monitoring a patient who has been taking carbamazepine (Tegretol) for 2 months. Which effects would indicate that autoinduction has started to occur?
- The drug levels for carbamazepine are higher than expected.
  - The drug levels for carbamazepine are lower than expected.
  - The patient is experiencing fewer seizures.
  - The patient is experiencing toxic effects from the drug.

ANS: B

With carbamazepine, autoinduction occurs and leads to lower than expected drug concentrations. Therefore, the dosage may have to be adjusted with time. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is giving an intravenous dose of phenytoin (Dilantin). Which action is correct when administering this drug?
- Give the dose as a fast intravenous (IV) bolus.
  - Mix the drug with normal saline, and give it as a slow IV push.
  - Mix the drug with dextrose (D<sub>5</sub>W), and give it as a slow IV push.
  - Mix the drug with any available solution as long as the administration rate is correct.

ANS: B

Intravenous phenytoin is given *only* with normal saline solution to prevent precipitation formation caused by incompatibilities. The IV push dose must be given slowly (not exceeding 50 mg/min in adults), and the patient must be monitored for bradycardia and decreased blood pressure.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The U.S. Food and Drug Administration has issued a warning for users of antiepileptic drugs. Based on this report, the nurse will monitor for which potential problems with this class of drugs?
- Increased risk of suicidal thoughts and behaviors
  - Signs of bone marrow depression
  - Indications of drug addiction and dependency
  - Increased risk of cardiovascular events, such as strokes

ANS: A

The U.S. Food and Drug Administration (FDA) has required black box warnings on all antiepileptic drugs regarding the risk of suicidal thoughts and behaviors. Patients being treated with antiepileptic drugs for any indication need to be monitored for the emergence or worsening of depression, suicidal thoughts or behavior, or any unusual changes in mood or behavior. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient is experiencing status epilepticus. The nurse prepares to give which drug of choice for the treatment of this condition?
- Diazepam (Valium)
  - Midazolam (Versed)
  - Valproic acid (Depakote)
  - Carbamazepine (Tegretol)

ANS: A

Diazepam (Valium) is considered by many to be the drugs of choice for status epilepticus. Other drugs that are used are listed in Table 14-3 and do not include the drugs listed in the other options.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. Phenytoin (Dilantin) has a narrow therapeutic index. The nurse recognizes that this characteristic indicates which of these?
- The safe and the toxic plasma levels of the drug are very close to each other.
  - The phenytoin has a low chance of being effective.
  - There is no difference between safe and toxic plasma levels.
  - A very small dosage can result in the desired therapeutic effect.

ANS: A

Having a “narrow therapeutic index” means that there is a small difference between safe and toxic drug levels. These drugs require monitoring of therapeutic plasma levels. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:



MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient has been taking an AED for several years as part of his treatment for focal seizures. His wife has called because he ran out of medication this morning and wonders if he can go without it for a few days until she has a chance to go to the drugstore. What is the nurse's best response?
- "He is taking another antiepileptic drug, so he can go without the medication for a week."
  - "Stopping this medication abruptly may cause withdrawal seizures. A refill is needed right away."
  - "He can temporarily increase the dosage of his other antiseizure medications until you get the refill."
  - "He can stop all medications because he has been treated for several years now."

ANS: B

Abrupt discontinuation of antiepileptic drugs can lead to withdrawal seizures. The other options are incorrect. The nurse cannot change the dose or stop the medication without a prescriber's order.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. During a routine appointment, a patient with a history of seizures is found to have a phenytoin (Dilantin) level of 23 mcg/mL. What concern will the nurse have, if any?
- The patient is at risk for seizures because the drug level is not at a therapeutic level.
  - The patient's seizures should be under control because this is a therapeutic drug level.
  - The patient's seizures should be under control if she is also taking a second antiepileptic drug.
  - The drug level is at a toxic level, and the dosage needs to be reduced.

ANS: D

Therapeutic drug levels for phenytoin are usually 10 to 20 mcg/mL (see Table 14-6). The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

12. A patient is taking gabapentin (Neurontin), and the nurse notes that there is no history of seizures on his medical record. What is the best possible rationale for this medication order?
- The medication is used for the treatment of neuropathic pain.
  - The medication is helpful for the treatment of multiple sclerosis.
  - The medication is used to reduce the symptoms of Parkinson's disease.
  - The medical record is missing the correct information about the patient's history of seizures.

ANS: A

Gabapentin (Neurontin) is commonly used to treat neuropathic pain. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. The nurse is reviewing antiepileptic drug (AED) therapy. Which statements about AED therapy are accurate? (*Select all that apply.*)
  - a. AED therapy can be stopped when seizures are stopped.
  - b. AED therapy is usually lifelong.
  - c. Consistent dosing is the key to controlling seizures.
  - d. A dose may be skipped if the patient is experiencing adverse effects.
  - e. Abruptly stopping AEDs may cause rebound seizure activity.

ANS: B, C, E

Patients need to know that AED therapy is usually lifelong, and compliance (with consistent dosing) is important for effective seizure control. Abruptly stopping AED therapy may cause withdrawal (or rebound) seizure activity.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A 9-year-old child will be receiving carbamazepine (Tegretol) suspension, 200 mg twice daily. The medication is available in a strength of 100 mg/5 mL. Identify how many milliliters the nurse will give to the patient for each dose. \_\_\_\_\_

ANS:

10 mL

100 mg:5 mL :: 200 mg: $x$  mL

$(100 \times x) = (5 \times 200)$ ;  $100x = 1000$ ;  $x = 10$  mL

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 15: Antiparkinson Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient has been taking selegiline (Eldepryl) for a few months, and recently the prescriber increased his dose to 20 mg/day. Today, during his office visit, he tells the nurse that he forgot and had a beer with dinner last evening, and “felt awful.” What did the patient most likely experience?
  - a. Hypotension
  - b. Hypertension
  - c. Urinary discomfort
  - d. Gastrointestinal upset

ANS: B

At doses that exceed the recommended dosage of 10 mg/day, selegiline becomes a nonselective monoamine oxidase inhibitor (MAOI), contributing to the development of the cheese effect, so-called because it interacts with tyramine-containing foods (cheese, red wine, beer, and yogurt) and can cause severe hypertension.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. A patient has been given a prescription for levodopa-carbidopa (Sinemet) for a new diagnosis of Parkinson’s disease. The patient asks the nurse, “Why are there two drugs in this pill?” The nurse’s best response reflects which fact?
  - a. Carbidopa allows for larger doses of levodopa to be given.
  - b. Carbidopa prevents the breakdown of levodopa in the periphery.
  - c. There are concerns about drug–food interactions with levodopa therapy that do not exist with the combination therapy.
  - d. Carbidopa is the biologic precursor of dopamine and can penetrate into the central nervous system.

ANS: B

When given in combination with levodopa, carbidopa inhibits the breakdown of levodopa in the periphery and thus allows smaller doses of levodopa to be used. Lesser amounts of levodopa result in fewer unwanted adverse effects. Levodopa, not carbidopa, is the biologic precursor of dopamine and can penetrate into the CNS.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. When a patient is taking an anticholinergic such as benztropine (Cogentin) as part of the treatment for Parkinson’s disease, the nurse should include which information in the teaching plan?
  - a. Minimize the amount of fluid taken while on this drug.
  - b. Discontinue the medication if adverse effects occur.
  - c. Take the medication on an empty stomach to enhance absorption.

- d. Use artificial saliva, sugarless gum, or hard candy to counteract dry mouth.

ANS: D

Dry mouth can be managed with artificial saliva through drops or gum, frequent mouth care, forced fluids, and sucking on sugar-free hard candy. Anticholinergics should be taken with or after meals to minimize GI upset and must not be discontinued suddenly. The patient must drink at least 3000 mL/day unless contraindicated. Drinking water is important, even if the patient is not thirsty or in need of hydration, to prevent and manage the adverse effect of constipation.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

- 4. A patient has been treated with antiparkinson medications for 3 months. What therapeutic responses should the nurse look for when assessing this patient?
  - a. Decreased appetite
  - b. Gradual development of cogwheel rigidity
  - c. Newly developed dyskinesias
  - d. Improved ability to perform activities of daily living

ANS: D

Therapeutic responses to antiparkinson agents include an improved sense of well-being, improved mental status, increased appetite, increased ability to perform activities of daily living and to concentrate and think clearly, and less intense parkinsonian manifestations.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

- 5. Carbidopa-levodopa (Sinemet) is prescribed for a patient with Parkinson's disease. The nurse informs the patient that which common adverse effects can occur with this medication?
  - a. Drowsiness, headache, weight loss
  - b. Dizziness, insomnia, nausea
  - c. Peripheral edema, fatigue, syncope
  - d. Heart palpitations, hypotension, urinary retention

ANS: D

Common adverse reactions associated with carbidopa-levodopa include palpitations, hypotension, urinary retention, dyskinesia, and depression. The other effects may occur with other antiparkinson drugs.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

- 6. The nurse is assessing the medication history of a patient with a new diagnosis of Parkinson's disease. Which condition is a contraindication for the patient, who will be taking entacapone (Comtan)?
  - a. Glaucoma
  - b. Seizure disorder

- c. Liver failure
- d. Benign prostatic hyperplasia

ANS: C

Entacapone is contraindicated in patients who have shown a hypersensitivity reaction to it, and it should be used with caution in patients with pre-existing liver disease. The other conditions listed are not contraindications.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

7. The nurse is developing a care plan for a patient who is taking an anticholinergic drug. Which human needs statement would be appropriate for this patient?
- a. Altered gastrointestinal elimination (diarrhea)
  - b. Altered urinary elimination
  - c. Altered safety needs, risk for infection
  - d. Altered sleep needs

ANS: B

Patients receiving anticholinergic drugs are at risk for urinary retention and constipation, not diarrhea. The other human needs statements are not applicable to anticholinergic drugs.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

8. A patient who has been on levodopa therapy for a year has a new order for a catechol ortho-methyltransferase (COMT) inhibitor as part of treatment for Parkinson's disease. The nurse recognizes that which of these is an advantage of this drug class?
- a. It has a shorter duration of action.
  - b. It causes less gastrointestinal distress.
  - c. It has a slower onset than traditional Parkinson's disease drugs.
  - d. It reduces the wearing-off phenomenon.

ANS: D

COMT inhibitors prolong the duration of action of levodopa, resulting in reduced wearing-off phenomenon. The other statements are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient taking entacapone (Comtan) for the first time calls the clinic to report a dark discoloration of his urine. After listening to the patient, the nurse realizes that what is happening in this situation?
- a. This is a harmless effect of the drug.
  - b. The patient has taken this drug along with red wine or cheese.
  - c. The patient is having an allergic reaction to the drug.
  - d. The ordered dose is too high for this patient.

ANS: A

COMT inhibitors, including entacapone, may darken a patient's urine and sweat.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. While a patient is receiving drug therapy for Parkinson's disease, the nurse monitors for dyskinesia, which is manifested by which finding?
- Rigid, tense muscles
  - Difficulty in performing voluntary movements
  - Limp extremities with weak muscle tone
  - Confusion and altered mental status

ANS: B

Dyskinesia is the difficulty in performing voluntary movements that is experienced by some patients with Parkinson's disease. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. When treating patients with medications for Parkinson's disease, the nurse knows that the wearing-off phenomenon occurs for which reason?
- There are rapid swings in the patient's response to levodopa.
  - The patient cannot tolerate the medications at times.
  - The medications begin to lose effectiveness against Parkinson's disease.
  - The patient's liver is no longer able to metabolize the drug.

ANS: C

The wearing-off phenomenon occurs when antiparkinson medications begin to lose their effectiveness, despite maximal dosing, as the disease progresses. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. When assessing the medication history of a patient with a new diagnosis of Parkinson's disease, which conditions are contraindications for the patient who will be taking carbidopa-levodopa? (*Select all that apply.*)
- Angle-closure glaucoma
  - History of malignant melanoma
  - Hypertension
  - Benign prostatic hyperplasia
  - Concurrent use of monoamine oxidase inhibitors (MAOIs)

ANS: A, B, E

Angle-closure glaucoma, a history of malignant melanoma or other undiagnosed skin conditions, and concurrent use of MAOIs are contraindications to the use of carbidopa-levodopa. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## COMPLETION

1. The prescriber writes this order, "Give amantadine (Symmetrel) 100 mg per PEG tube twice a day." The medication is available in a liquid form with a concentration 50 mg/5 mL. Identify how many milliliters the nurse will give with each dose. \_\_\_\_\_

ANS:

10 mL

50 mg:5 mL :: 100 mg: $x$  mL

$(50 \times x) = (5 \times 100)$ ;  $50x = 500$ ;  $x = 10$  mL

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 16: Psychotherapeutic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse reads in the patient's medication history that the patient is taking buspirone (BuSpar). The nurse interprets that the patient may have which disorder?
  - a. Anxiety disorder
  - b. Depression
  - c. Schizophrenia
  - d. Bipolar disorder

ANS: A

Buspirone is indicated for the treatment of anxiety disorders, not depression, schizophrenia, or bipolar disorder.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. Before beginning a patient's therapy with selective serotonin reuptake inhibitor (SSRI) antidepressants, the nurse will assess for concurrent use of which medications or medication class?
  - a. Aspirin
  - b. Anticoagulants
  - c. Diuretics
  - d. Nonsteroidal anti-inflammatory drugs

ANS: B

Use of selective serotonin reuptake inhibitor (SSRI) antidepressants with warfarin results in an increased anticoagulant effect. SSRI antidepressants do not interact with the other drugs or drug classes listed. See Table 16-6 for important drug interactions with SSRIs.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. When a patient is receiving a second-generation antipsychotic drug, such as risperidone (Risperdal), the nurse will monitor for which therapeutic effect?
  - a. Fewer panic attacks
  - b. Decreased paranoia and delusions
  - c. Decreased feeling of hopelessness
  - d. Improved tardive dyskinesia

ANS: B

The therapeutic effects of the antipsychotic drugs include improvement in mood and affect, and alleviation or decrease in psychotic symptoms (decrease in hallucinations, paranoia, delusions, garbled speech). Tardive dyskinesia is a potential adverse effect of these drugs. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:



Evaluation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

4. A patient has been taking haloperidol (Haldol) for 3 months for a psychotic disorder, and the nurse is concerned about the development of extrapyramidal symptoms. The nurse will monitor the patient closely for which effects?
- Increased paranoia
  - Drowsiness and dizziness
  - Abnormal muscle movements
  - Dry mouth and constipation

ANS: C

Extrapyramidal symptoms are manifested by abnormal muscle movements, and the incidence of such symptoms is high during haloperidol therapy. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

5. A patient has been taking the monoamine oxidase inhibitor (MAOI) phenelzine (Nardil) for 6 months. The patient wants to go to a party and asks the nurse, "Will just one beer be a problem?" Which advice from the nurse is correct?
- "You can drink beer as long as you have a designated driver."
  - "Now that you've been on the drug for 6 months, there will be no further dietary restrictions."
  - "If you begin to experience a throbbing headache, rapid pulse, or nausea, you'll need to stop drinking."
  - "You need to avoid all foods that contain tyramine, including beer, while taking this medication."

ANS: D

Foods containing tyramine, such as beer and aged cheeses, should be avoided while a patient is taking an MAOI. Drinking beer while taking an MAOI may precipitate a dangerous hypertensive crisis. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

6. A patient has been taking lithium for 1 year, and the most recent lithium level is 0.9 mEq/L. Which statement about the laboratory result is correct?
- The lithium level is therapeutic.
  - The lithium level is too low.
  - The lithium level is too high.
  - Lithium is not usually monitored with blood levels.

ANS: A

Desirable long-term maintenance lithium levels range between 0.6 and 1.2 mEq/L. The other responses are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient with the diagnosis of schizophrenia is hospitalized and is taking a phenothiazine drug. Which statement by this patient indicates that he is experiencing a common adverse effect of phenothiazines?
- "I can't sleep at night."
  - "I feel hungry all the time."
  - "Look at how red my hands are."
  - "My mouth has been so dry lately."

ANS: D

Phenothiazines produce anticholinergic-like adverse effects of dry mouth, urinary hesitancy, and constipation.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient has been taking the selective serotonin reuptake inhibitor (SSRI) sertraline (Zoloft) for about 6 months. At a recent visit, she tells the nurse that she has been interested in herbal therapies and wants to start taking St. John's wort. Which response by the nurse is appropriate?
- "That should be no problem."
  - "Good idea! Hopefully you'll be able to stop taking the Zoloft."
  - "Be sure to stop taking the herb if you notice a change in side effects."
  - "Taking St. John's wort with Zoloft may cause severe interactions and is not recommended."

ANS: D

The herbal product St. John's wort must not be used with SSRIs. Potential interactions include confusion, agitation, muscle spasms, twitching, and tremors. The other responses by the nurse are inappropriate.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

9. While monitoring a depressed patient who has just started SSRI antidepressant therapy, the nurse will observe for which problem during the early time frame of this therapy?
- Hypertensive crisis
  - Self-injury or suicidal tendencies
  - Extrapyramidal symptoms
  - Loss of appetite

ANS: B

The U.S. Food and Drug Administration (FDA) has issued black box warnings regarding the use of all classes of antidepressants in both adult and pediatric patient populations. Data from the FDA indicated a higher risk for suicide in patients receiving these medications. As a result, current recommendations for all patients receiving antidepressants include regular monitoring for signs of worsening depressive symptoms, especially when the medication is started or the dosage is changed. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

10. A patient has been admitted to the emergency department with a suspected overdose of a tricyclic antidepressant. The nurse will prepare for what immediate concern?
- Hypertension
  - Renal failure
  - Cardiac dysrhythmias
  - Gastrointestinal bleeding

ANS: C

Tricyclic antidepressant overdoses are notoriously lethal. The primary organ systems affected are the central nervous system and the cardiovascular system, and death usually results from either seizures or dysrhythmias.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. The wife of a patient who has been diagnosed with depression calls the office and says, "It's been an entire week since he started that new medicine for his depression, and there's no change! The medicine is not working!" What is the nurse's best response?
- "The medication may not be effective for him. He may need to try another type."
  - "It may take up to 6 weeks to notice any therapeutic effects. Let's wait a little longer to see how he does."
  - "It sounds like the dose is not high enough. I'll check about increasing the dosage."
  - "Some patients never recover from depression. He may not respond to this therapy."

ANS: B

Patients and family members need to be told that antidepressant drugs commonly require several weeks before full therapeutic effects are noted. The other answers are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. Clozapine (Clozaril), an atypical antipsychotic, is prescribed for a patient. The nurse will monitor for which adverse effect during this drug therapy?
- Edema
  - Photosensitivity

- c. Hypotension
- d. Severe neutropenia

ANS: D

Atypical antipsychotics may cause severe neutropenia. The other effects are adverse effects of conventional antipsychotics.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

13. The nurse is reviewing the food choices of a patient who is taking a monoamine oxidase inhibitor (MAOI). Which food choice would indicate the need for additional teaching?
- a. Grapefruit juice
  - b. Fried eggs over-easy
  - c. Pepperoni pizza
  - d. Pancakes and maple syrup

ANS: C

Cured meats such as pepperoni contain tyramine. Patients who are taking MAOIs need to avoid tyramine-containing foods because of a severe hypertensive reaction that may occur. The other foods listed do not contain tyramine.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

14. A patient wants to take a ginseng dietary supplement. The nurse instructs the patient to look for which potential adverse effect?
- a. Drowsiness
  - b. Palpitations and anxiety
  - c. Dry mouth
  - d. Constipation

ANS: B

Elevated blood pressure, chest pain or palpitations, anxiety, insomnia, headache, nausea, vomiting, and diarrhea are potential adverse effects of ginseng. Drowsiness, difficulty with urination, and constipation are not potential adverse effects of ginseng.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

15. The nurse is reviewing medications used for depression. Which of these statements is a reason that selective serotonin reuptake inhibitors (SSRIs) are more widely prescribed today than tricyclic antidepressants?
- a. SSRIs have fewer sexual side effects.
  - b. Unlike tricyclic antidepressants, SSRIs do not have drug–food interactions.
  - c. Tricyclic antidepressants cause serious cardiac dysrhythmias if an overdose occurs.
  - d. SSRIs cause a therapeutic response faster than tricyclic antidepressants.

ANS: C

Death from overdose of tricyclic antidepressants usually results from either seizures or dysrhythmias. SSRIs are associated with significantly fewer and less severe systemic adverse effects, especially anticholinergic and cardiovascular adverse effects. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. A patient who has been taking a selective serotonin reuptake inhibitor (SSRI) states that he “felt awful” when he started taking an over-the-counter St. John’s wort herbal product at home. The nurse suspects that he is experiencing serotonin syndrome. Which of these are symptoms of serotonin syndrome? (*Select all that apply.*)
  - a. Agitation
  - b. Drowsiness
  - c. Tremors
  - d. Bradycardia
  - e. Sweating

ANS: A, C, E

Common symptoms of serotonin syndrome include delirium, agitation, tachycardia, sweating, hyperreflexia, shivering, coarse tremors, and others. See Box 16-1 for a full list of symptoms.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. Which statements are true regarding the selective serotonin reuptake inhibitors (SSRIs)? (*Select all that apply.*)
  - a. Avoid foods and beverages that contain tyramine.
  - b. Monitor the patient for extrapyramidal symptoms.
  - c. Therapeutic effects may not be seen for about 4 to 6 weeks after the medication is started.
  - d. If the patient has been on an MAOI, a 2- to 5-week or longer time span is required before beginning an SSRI medication.
  - e. These drugs have anticholinergic effects, including constipation, urinary retention, dry mouth, and blurred vision.
  - f. Cogentin is often also prescribed to reduce the adverse effects that may occur.

ANS: C, D

During SSRI therapy, therapeutic effects may not be seen for 4 to 6 weeks. To prevent the potentially fatal pharmacodynamic interactions that can occur between the SSRIs and the MAOIs, a 2- to 5-week washout period is recommended between uses of these two classes of medications. The other options apply to other classes of psychotherapeutic drugs, not SSRIs.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A patient is to receive an intravenous dose of lorazepam (Ativan). The order reads, "Give lorazepam, 1 mg, IV push, now." Identify how many milliliters the nurse will administer for this dose. The medication vial contains 2 mg/mL. \_\_\_\_\_

ANS:

1 mL

2 mg:1 mL :: 2 mg: $x$  mL

$(2 \times x) = 1 \times 2$ ;  $2x = 2$ ;  $x = 1$  mL

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 17: Substance Use Disorder

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A 38-year-old male patient stopped smoking 6 months ago. He tells the nurse that he still feels strong cigarette cravings and wonders if he is ever going to feel “normal” again. Which statement by the nurse is correct?
  - a. “It’s possible that these cravings will never stop.”
  - b. “These cravings may persist for several months.”
  - c. “The cravings tell us that you are still using nicotine.”
  - d. “The cravings show that you are about to experience nicotine withdrawal.”

ANS: B

Cigarette cravings may persist for months, or even years, after nicotine withdrawal. The other statements are false.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

2. A patient in a rehabilitation center is beginning to experience opioid withdrawal symptoms. The nurse expects to administer which drug as part of the treatment?
  - a. Diazepam (Valium)
  - b. Methadone
  - c. Disulfiram (Antabuse)
  - d. Bupropion (Zyban)

ANS: B

Opioid withdrawal can be managed with either methadone or clonidine (Catapres). See Box 17-3. Diazepam and disulfiram are used for treatment of alcoholism, and bupropion is used to assist with smoking cessation.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient has been taking naltrexone (ReVia) as part of the treatment for addiction to heroin. The nurse expects that the naltrexone will have which therapeutic effect for this patient?
  - a. Naltrexone prevents the cravings for opioid drugs.
  - b. Naltrexone works as a safer substitute for the heroin until the patient completes withdrawal.
  - c. The patient will experience flushing, sweating, and severe nausea if he takes heroin while on naltrexone.
  - d. If opioid drugs are used while taking naltrexone, euphoria is not produced; thus, the opioid’s desired effects are lost.

ANS: D

Naltrexone works to eliminate the euphoria that occurs with opioid drug use; therefore, the reinforcing effect of the drug is lost.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. The nurse is presenting a substance-abuse lecture for teenage girls and is asked about “roofies.” The nurse recognizes that this is the slang term for which substance?
- Cocaine
  - Flunitrazepam
  - Secobarbital
  - Methamphetamine

ANS: B

Flunitrazepam is a benzodiazepine that has gained popularity as a recreational drug and is commonly called *roofies* (the “date-rape” drug). The other drugs are not known as roofies.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. A 29-year-old patient is admitted to the intensive care unit with the following symptoms: restlessness, hyperactive reflexes, talkativeness, confusion and periods of panic, and tachycardia. The nurse suspects that he may be experiencing the effects of taking which substance?
- Opioids
  - Alcohol
  - Stimulants
  - Depressants

ANS: C

The adverse effects listed may occur with use of stimulants and are commonly an extension of their therapeutic effects. Opioids, alcohol, and depressants do not have these effects.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. When admitting a patient with a suspected diagnosis of chronic alcohol use, the nurse will keep in mind that chronic use of alcohol might result in which condition?
- Renal failure
  - Cerebrovascular accident
  - Korsakoff’s psychosis
  - Alzheimer’s disease

ANS: C

A variety of serious neurologic and mental disorders, such as Korsakoff’s psychosis and Wernicke’s encephalopathy, as well as cirrhosis of the liver, may occur with chronic use of alcohol. Renal failure, cerebrovascular accident, and Alzheimer’s disease are not associated directly with chronic use of alcohol.



DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Assessment  
MSC: NCLEX: Physiological Integrity: Physiological Adaptation

7. A patient is being treated for ethanol alcohol abuse in a rehabilitation center. The nurse will include which information when teaching him about disulfiram (Antabuse) therapy?
- He should not smoke cigarettes while on this drug.
  - He needs to know about the common over-the-counter substances that contain alcohol.
  - This drug will cause the same effects as the alcohol did, without the euphoric effects.
  - Mouthwashes and cough medicines that contain alcohol are safe because they are used in small amounts.

ANS: B

The use of disulfiram (Antabuse) with alcohol-containing over-the-counter products will elicit severe adverse reactions. As little as 7 mL of alcohol may cause symptoms in a sensitive person. Cigarette smoking does not cause problems when taking disulfiram. Disulfiram does not have the same effects as alcohol.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation  
MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is conducting a smoking-cessation program. Which statement regarding drugs used in cigarette-smoking-cessation programs is true?
- Rapid chewing of the nicotine gum releases an immediate dose of nicotine.
  - Quick relief from withdrawal symptoms is most easily achieved by using a transdermal patch.
  - Compliance with treatment is higher with use of the gum rather than the transdermal patch.
  - The nicotine gum can be used only up to six times per day.

ANS: A

Quick or acute relief from withdrawal symptoms is most easily achieved with the use of the gum because rapid chewing of the gum produces an immediate dose of nicotine. However, treatment compliance is higher with the use of the transdermal patch system. Nicotine gum can be used whenever the patient has a strong urge to smoke.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation  
MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. A nurse is providing teaching for a patient who will be taking varenicline (Chantix) as part of a smoking-cessation program. Which teaching points are appropriate for a patient taking this medication? (*Select all that apply.*)
- This drug is available as a chewing gum that can be taken to reduce cravings.
  - Use caution when driving because drowsiness may be a problem.

- c. There have been very few adverse effects reported for this drug.
- d. Notify the prescriber immediately if feelings of sadness or thoughts of suicide occur.
- e. Avoid caffeine while on this drug.

ANS: B, D

Patients taking varenicline have reported drowsiness, which has prompted the U.S. Food and Drug Administration (FDA) to recommend caution when driving and engaging in other potentially hazardous activities until the patient can determine how the drug affects his or her mental status. In addition, the FDA has warned about psychiatric symptoms including agitation, depression, and suicidality. Varenicline is an oral tablet, and common adverse effects include nausea, vomiting, headache, and insomnia. There are no cautions about taking caffeine while on this drug.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. A patient has been taking disulfiram (Antabuse) as part of his rehabilitation therapy. However, this evening, he attended a party and drank half a beer. As a result, he became ill and his friends took him to the emergency department. The nurse will look for which adverse effects associated with acetaldehyde syndrome? (*Select all that apply.*)
- a. Euphoria
  - b. Severe vomiting
  - c. Diarrhea
  - d. Pulsating headache
  - e. Difficulty breathing
  - f. Sweating

ANS: B, D, E, F

Acetaldehyde syndrome results when alcohol is taken while on disulfiram (Antabuse) therapy. Adverse effects include CNS effects (pulsating headache, sweating, uneasiness, weakness, vertigo, others); GI effects (nausea, copious vomiting, thirst); and difficulty breathing. Cardiovascular effects also occur; see Table 17-2. Euphoria and diarrhea are not adverse effects associated with acetaldehyde syndrome.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

3. The nurse is monitoring a patient who is experiencing severe ethanol withdrawal. Which are signs and symptoms of severe ethanol withdrawal? (*Select all that apply.*)
- a. Agitation
  - b. Drowsiness
  - c. Tremors
  - d. Systolic blood pressure higher than 200 mm Hg
  - e. Temperature over 100° F (37.7° C)
  - f. Pulse rate 150 beats/min

ANS: A, C, D, F

Signs and symptoms of severe ethanol withdrawal (delirium tremens) include systolic blood pressure higher than 200 mm Hg, diastolic blood pressure higher than 140 mm Hg, pulse rate higher than 140 beats/min, temperature above 101° F (38.3° C), tremors, insomnia, and agitation. See Box 17-6 for all signs and symptoms of ethanol withdrawal.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## Chapter 18: Adrenergic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is aware that adrenergic drugs produce effects similar to which of these nervous systems?
  - a. Central nervous system
  - b. Somatic nervous system
  - c. Sympathetic nervous system
  - d. Parasympathetic nervous system

ANS: C

Adrenergic drugs mimic the effects of the sympathetic nervous system.

DIF: Cognitive Level: Remembering (Knowledge)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. When an adrenergic drug stimulates beta<sub>1</sub>-adrenergic receptors, the result is an increased force of contraction, which is known as what type of effect?
  - a. Positive inotropic
  - b. Antiadrenergic
  - c. Negative chronotropic
  - d. Positive dromotropic

ANS: A

An increased force of contraction is known as a positive inotropic effect. Positive chronotropic effect (increased heart rate) also occur. Positive dromotropic effect is an increase in the conduction of cardiac electrical nerve impulses through the atrioventricular node.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. When a patient is taking an adrenergic agonist drug, the nurse expects to observe which effect?
  - a. Increased heart rate
  - b. Bronchial constriction
  - c. Constricted pupils
  - d. Increased intestinal peristalsis

ANS: A

Increased heart rate is one of the effects of adrenergic drugs. Sympathetic nervous system stimulation also results in bronchodilation, dilated pupils, and decreased gastrointestinal mobility, depending upon which receptors are stimulated.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. An adrenergic agonist is ordered for a patient in shock. The nurse will note that this drug has had its primary intended effect if which expected outcome occurs?
- Volume restoration
  - Increased cardiac output
  - Decreased urine output
  - Reduced anxiety

ANS: B

For a patient in shock, a primary benefit of an adrenergic agonist drug is to increase cardiac output. A drug in this category should not be used in place of volume restoration, nor does it provide volume restoration (IV fluids do this). Adrenergic agonists may enhance urine output if cardiac output and perfusion to the kidneys increase. These drugs do not reduce anxiety.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse is administering a stat dose of epinephrine. Epinephrine is appropriate for which situation?
- Severe hypertension
  - Angina
  - Cardiac arrest
  - Tachycardia

ANS: C

Treatment of cardiac arrest is an indication for the use of epinephrine. The other options are not indications for epinephrine.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient is on a low-dose dobutamine drip for heart failure. She had been feeling better but now has a sense of tightness in her chest, palpitations, and a bit of anxiety. Her heart rate is up to 110 beats/min, and her blood pressure is 150/98 mm Hg (increased from previous readings of 86 beats/min and 120/80 mm Hg). What is the nurse's immediate concern for this patient?
- She is experiencing normal adverse effects of dobutamine therapy.
  - She may be experiencing an allergic reaction to the dobutamine.
  - The medication may be causing a worsening of a preexisting cardiac disorder.
  - The dosage of the dobutamine needs to be increased to control the symptoms better.

ANS: C

Because dobutamine is a vasoactive adrenergic, it works by increasing the cardiac output in heart failure patients by increasing myocardial contractility and stroke volume.

However, adrenergic drugs may worsen a preexisting cardiac disorder, such as causing a myocardial infarction in a patient with coronary artery disease. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A 14-year-old patient has been treated for asthma for almost 4 months. Two weeks ago, she was given salmeterol as part of her medication regimen. However, her mother has called the clinic to report that it does not seem to work when her daughter is having an asthma attack. Which response by the nurse is appropriate?
- "It takes time for a therapeutic response to develop."
  - "She is too young for this particular medication; it will be changed."
  - "She needs to take up to two puffs every 4 hours to ensure adequate blood levels."
  - "This medication is indicated for prevention of bronchospasms, not for relief of acute symptoms."

ANS: D

Salmeterol is indicated for the prevention of bronchospasms, not treatment of acute symptoms. The dosage is usually two puffs twice daily, 12 hours apart, for maintenance effects in patients older than 12 years of age. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A hospitalized patient is experiencing a severe anaphylactic reaction to a dose of intravenous penicillin. Which drug will the nurse expect to use to treat this condition?
- Ephedra
  - Epinephrine
  - Phenylephrine
  - Pseudoephedrine

ANS: B

Epinephrine is the drug of choice for the treatment of anaphylaxis. The other drugs listed are incorrect choices.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse recognizes that adrenergic drugs cause relaxation of the bronchi and bronchodilation by stimulating which type of receptors?
- Dopaminergic
  - Beta<sub>1</sub> adrenergic
  - Beta<sub>2</sub> adrenergic
  - Alpha<sub>1</sub> adrenergic

ANS: C

Stimulation of beta<sub>2</sub>-adrenergic receptors results in bronchodilation. The other choices are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse is preparing to administer dopamine. Which is the correct technique for administering dopamine?
- Orally
  - Intravenous (IV) push injection
  - Intermittent IV infusions (IV piggyback)
  - Continuous IV infusion with an infusion pump

ANS: D

Dopamine is available only as an IV injectable drug and is given by continuous infusion, using an infusion pump. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. The nurse is presenting information to a class of students about adrenergic drugs. Which are the effects of drugs that stimulate the sympathetic nervous system? (*Select all that apply.*)
- Dilation of bronchioles
  - Constriction of bronchioles
  - Decreased heart rate
  - Increased heart rate
  - Dilated pupils
  - Constricted pupils
  - Glycogenolysis

ANS: A, D, E, G

Stimulation of the sympathetic nervous system causes bronchodilation, increased heart rate, pupil dilation, and glycogenolysis as well as many other effects (see Table 18-1). The other responses are effects that occur as a result of the stimulation of the parasympathetic nervous system.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. The nurse is to administer epinephrine 0.3 mg subcutaneously. The ampule contains 1 mL of medication and is labeled 1 mg/mL. Identify how many milliliters of epinephrine the nurse will give. \_\_\_\_\_

ANS:

0.3 mL

1 mg:1 mL :: 0.3 mg:x mL

$(1 \times x) = (1 \times 0.3)$ ;  $1x = 0.3$ ;  $x = 0.3$ ; give 0.3 mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



## Chapter 19: Adrenergic-Blocking Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. During therapy with a beta blocker, the patient notices that she has swollen feet, has gained 3 pounds within 2 days, feels short of breath even when walking around the house, and has been dizzy. The nurse suspects that which of these is occurring?
  - a. The patient is experiencing an allergic reaction.
  - b. The patient may be developing heart failure.
  - c. More time is needed for the patient to see a therapeutic response to the drug.
  - d. The patient is experiencing expected adverse effects of the drug.

ANS: B

Even though some beta blockers may be used for the treatment of some types of heart failure, the patient needs to be assessed often for the development of heart failure, a potential adverse effect of the drugs. These symptoms do not indicate expected adverse effects, an allergic reaction, or a therapeutic response.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient is going home with a new prescription for the beta-blocker atenolol (Tenormin). The nurse will include which content when teaching the patient about this drug?
  - a. Never stop taking this medication abruptly.
  - b. The medication will be stopped once symptoms subside.
  - c. If adverse effects occur, stop taking the drug for 24 hours, and then resume.
  - d. Be watchful for first-dose hypotension.

ANS: A

Patients need to be weaned off these medications slowly because rebound hypertension and chest pain are possible with abrupt withdrawal. The drugs should never be stopped abruptly nor doses skipped. First-dose hypotension occurs with alpha blockers.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. During rounds, the nurse notes that a dobutamine infusion has extravasated into the forearm of a patient. After stopping the infusion, the nurse follows standing orders and immediately injects phentolamine (Regitine) subcutaneously in a circular fashion around the extravasation site. What is the mechanism of action of the phentolamine in this situation?
  - a. It neutralizes the extravasated dobutamine immediately.
  - b. It causes arterial vasoconstriction and reduces pain and swelling at the site.
  - c. It increases peripheral vascular resistance and reduces arterial pressure at the site.
  - d. It increases blood flow to the ischemic site by vasodilation to prevent tissue damage.

ANS: D

Phentolamine is an alpha blocker that reduces peripheral vascular resistance when given systemically, but local subcutaneous injection around the site of extravasated vasoconstrictive drugs, such as dobutamine, causes an alpha-adrenergic receptor blockade and vasodilation. This allows for increased blood flow to the ischemic tissue and may prevent permanent tissue damage.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A 58-year-old man has had a myocardial infarction (MI), has begun rehabilitation, and is ready for discharge. He is given a prescription for metoprolol (Lopressor) and becomes upset after reading the patient education pamphlet. "I don't have high blood pressure—why did my doctor give me this medicine?" Which explanation by the nurse is correct?
- "This medication will prevent blood clots that may lead to another heart attack."
  - "Beta blockers will improve blood flow to the kidneys."
  - "This drug is prescribed to prevent the high blood pressure that often occurs after a heart attack."
  - "Studies have shown that this medication has greatly increased survival rates in patients who have had a heart attack."

ANS: D

Beta blockers are frequently given to patients after they have suffered an MI because of their cardioprotective properties. The other responses are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation MSC: NCLEX: Psychosocial Integrity

5. The teaching for a patient who is taking tamsulosin (Flomax) to reduce urinary obstruction due to benign prostatic hyperplasia will include which of these?
- Fluids need to be restricted while on this medication.
  - Take the medication with breakfast to promote the maximum effects of the drug.
  - Get up slowly from a sitting or lying position.
  - Blood pressure must be monitored because the medication may cause hypertension.

ANS: C

This medication is used to relieve impaired urinary flow in men with benign prostatic hyperplasia, but it also can cause orthostatic hypotension when changing positions from sitting or lying positions. Because of these effects, the blood pressure may become dramatically lowered, and lightheadedness may occur, increasing the risk of falling.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

6. The nurse is screening a patient who will be taking a nonspecific/nonselective beta blocker. Which condition, if present, may cause serious problems if the patient takes this medication?

- a. Angina
- b. Hypertension
- c. Glaucoma
- d. Asthma

ANS: D

Nonspecific/nonselective beta-blocking drugs may precipitate bradycardia, hypotension, heart block, heart failure, bronchoconstriction, and/or increased airway resistance.

Therefore, any pre-existing respiratory conditions such as asthma might be worsened by the concurrent use of any of these medications.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient is experiencing Class II heart failure. The nurse expects which beta blocker to be ordered for this patient?
- a. Atenolol (Tenormin)
  - b. Carvedilol (Coreg)
  - c. Labetalol (Normodyne)
  - d. Esmolol (Brevibloc)

ANS: B

Not all beta blockers are used for the treatment of heart failure. Carvedilol and metoprolol are currently used in the treatment of heart failure. The other drugs listed are not indicated for the treatment of heart failure.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. During a teaching session about self-monitoring while taking a beta blocker at home, the nurse has taught the patient to take his apical pulse daily for 1 minute. If the pulse rate decreases to less than 60 beats/min, the nurse will instruct the patient to do which of these?
- a. Notify his prescriber.
  - b. Reduce the dose of his beta blocker by half.
  - c. Continue the medication because this is an expected effect.
  - d. Skip the medication dose that day, and check his pulse again the next day.

ANS: A

Cardiac depression can occur with beta blockers; instruct the patient to contact his prescriber if his pulse rate decreases to less than 60 beats/min. The medication dose may need to be changed, but it is not appropriate for the nurse to change the dosage. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

9. A 49-year-old patient is in the clinic for a follow-up visit 3 months after starting a beta blocker for treatment of hypertension. During this visit, his blood pressure is 169/98 mm Hg, and he eventually confesses that he stopped taking this medicine 2 months ago because of an “embarrassing problem.” What problem did the patient most likely experience with this medication that caused him to stop taking it?
- Urge incontinence
  - Dizziness when standing up
  - Excessive flatus
  - Impotence

ANS: D

Impotence is a potential adverse effect of beta blockers and may cause patients to stop taking the medication. The other options are not adverse effects of beta blockers.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient has a new prescription for tamsulosin (Flomax) as treatment for benign prostatic hyperplasia. The nurse is checking his current medication list and will contact the prescriber regarding a potential interaction if the patient is also taking which drug?
- Levothyroxine (Synthroid) for hypothyroidism
  - Sildenafil (Viagra), an erectile dysfunction medication
  - Omeprazole (Prilosec), a proton pump inhibitor
  - Low-dose aspirin for stroke prevention

ANS: B

Drugs that interact with alpha blockers such as tamsulosin include erectile dysfunction drugs; additive hypotensive effects may occur. The other drugs do not interact with tamsulosin.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient is taking an alpha blocker as treatment for benign prostatic hyperplasia. The nurse will monitor for which potential drug effect?
- Orthostatic hypotension
  - Increased blood pressure
  - Decreased urine flow
  - Discolored urine

ANS: A

Orthostatic hypotension can occur with any dose of an alpha blocker, and patients must be warned to get up slowly from a supine position. The other responses are not drug effects of alpha blockers.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. A beta blocker is prescribed for a patient with angina. The nurse reviews the orders for other drugs that may interact with the beta blocker. Which drugs or drug classes are known to have an interaction with a beta blocker? (*Select all that apply.*)
  - a. Diuretics
  - b. Anticholinergics
  - c. Penicillins
  - d. Oral hypoglycemics
  - e. Alcohol
  - f. Anticoagulants

ANS: A, B, D, E

When taken with beta blockers, diuretics and alcohol may cause additive hypotensive effects; oral hypoglycemic medications may cause the blood glucose to decrease; and anticholinergics may cause decreased beta-blocker effects. Penicillins and anticoagulants are not known to interact with beta blockers.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A patient has an order for carvedilol (Coreg) 9.375 mg twice a day PO. The tablets are 3.125 mg each. Identify how many tablets will the nurse administer per dose. \_\_\_\_\_

ANS:

3 tablets

3.125 mg: 1 tablet :: 9.375 mg:  $x$  tablets

$(3.125 \times x) = (1 \times 9.375)$ ;  $3.125x = 9.375$   $x = 3$  tablets

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 20: Cholinergic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. When monitoring a patient who is taking a cholinergic drug, the nurse will watch for which cardiovascular effect?
  - a. Bradycardia
  - b. Tachycardia
  - c. Vasoconstriction
  - d. Palpitations

ANS: A

The cardiovascular effects of cholinergic drugs are decreased heart rate (not tachycardia) and vasodilation. Palpitations are not effects of cholinergic drugs.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse notes in a patient's medication history that the patient is taking pilocarpine (Pilocar). Based on this finding, the nurse interprets that the patient has which disorder?
  - a. Anticholinergic poisoning
  - b. Glaucoma
  - c. Bladder atony
  - d. Myasthenia gravis

ANS: B

Pilocarpine is a direct-acting drug that is used topically to reduce intraocular pressure in patients with glaucoma. The other disorders are not indications for pilocarpine.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient has had an overdose of an intravenous cholinergic drug. The nurse expects to administer which drug as an antidote?
  - a. Atenolol (Tenormin)
  - b. Bethanechol (Urecholine)
  - c. Dobutamine
  - d. Atropine sulfate

ANS: D

Prompt administration of atropine sulfate can reverse a toxic dose of cholinergic drugs. The other drugs listed are not antidotes to cholinergic toxicity.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient who has had abdominal surgery has been discharged on a cholinergic drug to assist in increasing gastrointestinal peristalsis. The nurse will teach this patient to look for which therapeutic effect?
- Decreased pulse rate
  - Abdominal cramping
  - Passage of flatus
  - Decreased urge to void

ANS: C

In patients suffering a decrease in GI peristalsis postoperatively, taking a cholinergic drug should result in an increase in bowel sounds, the passage of flatus, and the occurrence of bowel movements that indicate increased GI peristalsis.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. A cholinergic drug is prescribed for a patient with a new diagnosis of myasthenia gravis, and the nurse provides instructions to the patient about the medication. What is important to include in the teaching?
- Give daytime doses close together for maximal therapeutic effect.
  - Take the medication with meals to avoid gastrointestinal distress.
  - Take the medication 30 minutes before eating to improve swallowing and chewing.
  - Take the medication only if difficulty swallowing occurs during a meal.

ANS: C

Taking the medication 30 minutes before meals allows time for the onset of action and therapeutic effects during the meal. The doses should be spaced evenly apart to optimize the effects of the medication. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. A factory worker has been admitted to the emergency department after an industrial accident involving organophosphate insecticides. The nurse will prepare to administer which drug?
- Pilocarpine (Salagen)
  - Bethanechol (Urecholine)
  - Physostigmine (Antilirium)
  - Tacrine (Cognex)

ANS: C

Indirect-acting drugs such as physostigmine inhibit acetylcholinesterase, thus reversing the neuromuscular blockade produced by anticholinergic poisoning as well as poisoning by irreversible cholinesterase inhibitors such as the organophosphates and carbamates, common classes of insecticides. The other drugs listed are not appropriate antidotes.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is providing teaching regarding drug therapy to the husband of a woman with Alzheimer's disease. She was diagnosed 3 months ago, has mild memory loss, and will be receiving donepezil (Aricept). What is the drug's expected action?
- Prevents memory loss in later stages
  - Reverses the course of Alzheimer's disease
  - Provides sedation to prevent agitation and restlessness
  - May help to improve the mood and decrease confusion

ANS: D

Donepezil is used to treat mild-to-moderate dementia occurring in Alzheimer's disease and may improve the symptoms of the disease.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient has been taking donepezil (Aricept) for 2 weeks as part of the treatment for early stages of Alzheimer's disease. Her daughter calls the prescriber's office and is upset because "Mother has not improved one bit!" Which response by the nurse is appropriate?
- "Increase the dosage to twice daily."
  - "It takes time for the cure to take effect."
  - "It may take up to 6 weeks to see an improvement."
  - "Take the medication on an empty stomach for improved absorption."

ANS: C

Donepezil therapy is not a cure for Alzheimer's disease, but it may help to improve symptoms in the early stages. It may take up to 6 weeks to see improvement. The family should be taught that the medication must be taken exactly as ordered and with meals, and the medication should not be abruptly stopped or the dosage increased without the physician's approval because of the possibility of serious complications.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Psychosocial Integrity

9. A patient who has been diagnosed with Sjögren's syndrome will be given cevimeline (Evoxac) for the treatment of xerostomia. The nurse will monitor for what therapeutic effect?
- Reduction of salivation
  - Stimulation of salivation
  - Reduction of gastrointestinal peristalsis
  - Improvement of fine-motor control

ANS: B

Cevimeline is a direct-acting cholinergic drug that is used to stimulate salivation in patients who have xerostomia (dry mouth), one of the manifestations of Sjögren's syndrome. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



10. The nurse is reviewing the mechanism of action of cholinergic drugs. The undesired effects of cholinergic drugs come from the stimulation of which receptors?
- Muscarinic
  - Nicotinic
  - Cholinergic
  - Ganglionic

ANS: B

Many of the undesirable adverse effects are due to nicotinic receptor stimulation. The desired effects come from muscarinic receptor stimulation. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient calls the clinic to speak to the nurse about taking an herbal product that contains ginkgo (*Ginkgo biloba*) to “help my memory.” He states that he has read much information about the herbal product. Which statement by the patient indicates a need for further education?
- “I know the FDA has not approved this herbal product, but I’d like to try it to see if it helps my memory.”
  - “I need to watch for possible side effects, such as headaches, or stomach or intestinal upset.”
  - “I will take aspirin or ibuprofen (Motrin) if I have a headache.”
  - “Ginkgo may cause increased bleeding, so I’ll have to be careful when doing yard work.”

ANS: C

Drug interactions may occur between the taking of aspirin and nonsteroidal anti-inflammatory drugs and the taking of ginkgo. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

12. A patient is receiving a dose of edrophonium (Tensilon). The nurse recognizes that this drug is given to determine the diagnosis of which disease?
- Parkinson’s disease
  - Multiple sclerosis
  - Myasthenia gravis
  - Alzheimer’s disease

ANS: C

Edrophonium, another indirect-acting cholinergic drug, is commonly used to diagnose myasthenia gravis. Edrophonium is not used in diagnosing Parkinson’s disease, multiple sclerosis, or Alzheimer’s disease.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. A cholinergic drug is prescribed for a patient. The nurse checks the patient's medical history, knowing that this drug is contraindicated in which disorders? (*Select all that apply.*)
  - a. Bladder atony
  - b. Gastrointestinal obstruction
  - c. Bradycardia
  - d. Alzheimer's disease
  - e. Hypotension
  - f. Chronic obstructive pulmonary disease

ANS: B, C, E, F

Contraindications to the use of cholinergic drugs include gastrointestinal or genitourinary obstruction, bradycardia, hypotension, and chronic obstructive pulmonary disease. The other options are possible *indications* for cholinergic drugs.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient is receiving memantine (Namenda) 10 mg PO daily. The patient is unable to swallow pills, so an oral solution that contains 2 mg/mL is ordered. Identify how much will the patient receive per dose. \_\_\_\_\_

ANS:

5 mL

2 mg:1 mL :: 10 mg:x mL

$(2 \times x) = (1 \times 10)$ ;  $2x = 10$ ;  $x = 5$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 21: Cholinergic-Blocking Drugs

### Lilley: Pharmacology and the Nursing Process, 0th Edition

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#### MULTIPLE CHOICE

1. The nurse is about to administer a *stat* dose of intravenous atropine sulfate to a patient who is experiencing a symptomatic cardiac dysrhythmia. During administration of this drug, the nurse will monitor the patient closely for which adverse effect?
  - a. Tachycardia
  - b. Bradycardia
  - c. Ectopic beats
  - d. Cardiac standstill

ANS: A

Cardiovascular effects of cholinergic blockers include increased heart rate and dysrhythmias. One indication for use is the treatment of sinus bradycardia accompanied by hemodynamic compromise. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient has a prescription for oxybutynin (Ditropan), an anticholinergic drug. When reviewing the patient's medical history, which condition, if present, would be considered a contraindication to therapy with this drug?
  - a. Diarrhea
  - b. Hypertension
  - c. Neurogenic bladder
  - d. Uncontrolled angle-closure glaucoma

ANS: D

Contraindications include drug allergy, urinary or gastric retention, and uncontrolled angle-closure glaucoma. Neurogenic bladder is an indication for oxybutynin. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The nurse is reviewing the use of anticholinergic drugs. Anticholinergic drugs block the effects of which nervous system?
  - a. Central nervous system
  - b. Somatic nervous system
  - c. Sympathetic nervous system
  - d. Parasympathetic nervous system

ANS: D

Anticholinergic drugs block or inhibit the actions of acetylcholine in the parasympathetic nervous system. The other options are incorrect.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process:

General

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient has received an accidental overdose of intravenous atropine. Which drug will the nurse prepare to administer?
- Atenolol (Tenormin)
  - Bethanechol (Urecholine)
  - Dicyclomine (Bentyl)
  - Physostigmine (Antilirium)

ANS: D

Physostigmine salicylate is the antidote to an atropine overdose in patients who show extreme delirium or agitation and could inflict injury to themselves. Its routine use as an antidote for cholinergic-blocker overdose is controversial, however. The other options are incorrect choices.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A 72-year-old man has a new prescription for an anticholinergic drug. He is an active man and enjoys outdoor activities, such as golfing and doing his own yard work. What will the nurse emphasize to him during the teaching session about his drug therapy?
- Drowsiness may interfere with his outdoor activities.
  - Increased salivation may occur during exercise and outside activities.
  - Fluid loss may occur as a result of an increased incidence of diarrhea.
  - He will need to take measures to reduce the occurrence of heat stroke during his activities.

ANS: D

Elderly patients who take an anticholinergic drug need to be reminded that they are at a greater risk for suffering heat stroke because of decreased sweating and loss of normal heat-regulating mechanisms. The other options are not correct.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. The nurse will monitor for which adverse effect when administering an anticholinergic drug?
- Excessive urination
  - Diaphoresis
  - Dry mouth
  - Pupillary constriction

ANS: C

Anticholinergic drugs commonly cause the adverse effects of dry mouth, blurred vision, constipation, and urinary retention. They also cause mydriasis (pupillary dilation).

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is reviewing a patient's medication history and notes that the patient is taking the cholinergic blocker tolterodine (Detrol). Which is an indication for this medication?
- Irritable bowel disease
  - Induction of mydriasis
  - Urge incontinence
  - Reduction of secretions preoperatively

ANS: C

Tolterodine (Detrol) is used for urinary frequency, urgency, and urge incontinence caused by bladder (detrusor) overactivity. The conditions in the other options are not indications.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient has been taking tolterodine (Detrol), but today her prescriber changed her to a newer drug, darifenacin (Enablex). What advantage does darifenacin have over the tolterodine?
- The newer cholinergic-blocker drugs are more effective.
  - It helps reduce urinary retention.
  - It can be used in patients with narrow-angle glaucoma.
  - The incidence of dry mouth is much lower with darifenacin.

ANS: D

The incidence of dry mouth is much lower with use of the newer cholinergic-blocker drugs, such as darifenacin, because the actions of these drugs are more specific for the bladder as opposed to the salivary glands. These drugs are contraindicated if narrow-angle glaucoma or urinary retention is present. The newer cholinergic-blocker drugs are not necessarily more effective.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse working in a preoperative admitting unit administers an anticholinergic medication to a patient before surgery. What is the purpose of this drug in the preoperative setting?
- Reduce pain
  - Relax the patient
  - Reduce urinary frequency
  - Reduce oral and gastrointestinal secretions

ANS: D

Anticholinergic drugs are given preoperatively to control oral and gastrointestinal secretions during surgery. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. In preparation for eye surgery, the nurse monitors for which desired drug effect in a patient who is receiving a cholinergic-blocking eyedrop medication?
- Miosis
  - Mydriasis
  - Increased intraocular fluid production
  - Enhanced tear production

ANS: B

Cholinergic-blocking eyedrops cause dilation of the pupil (mydriasis) and paralysis of the ocular lens (cycloplegia), both of which are important for eye surgery. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient has a new prescription for the transdermal form of scopolamine. The nurse knows that this form of scopolamine is used for which condition?
- Angina
  - Chronic pain
  - Hypertension
  - Motion sickness

ANS: D

Transdermal scopolamine (Transderm-Scop) is a patch that can be applied just behind the ear 4 to 5 hours before travel for the prevention of motion sickness. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. The nurse is reviewing the indications for atropine sulfate. Atropine is appropriate for which of these patients? (*Select all that apply.*)
- A patient who has suddenly developed symptomatic bradycardia with a heart rate of 32 beats/min
  - A patient who has suddenly developed symptomatic tachycardia with a heart rate of 180 beats/min
  - A patient with severe narrow-angle glaucoma
  - A patient who is about to have surgery
  - A patient newly diagnosed with myasthenia gravis
  - A patient with anticholinesterase inhibitor poisoning

ANS: A, D, F

Anticholinergic drugs are used for symptomatic bradycardia and certain other cardiac conditions. It is given preoperatively to control secretions during surgery and is used as an antidote for anticholinesterase inhibitor poisoning. The other options are contraindications to the use of atropine.

DIF: Cognitive Level: Analyzing (Analysis)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient is to receive glycopyrrolate (Robinul) 4 mcg/kg IM 30 minutes before a procedure. The patient weighs 110 pounds; the medication is available in a strength of 0.2 mg/mL. Identify how many milliliters of medication the nurse will draw up into the syringe. \_\_\_\_\_

ANS:

1 mL

110 pounds  $2.2 = 50$  kg.

To calculate mcg/kg, multiply 4 mcg/kg by 50 kg ( $4 \text{ mcg/kg} \times 50 \text{ kg} = 200 \text{ mcg}$ ).

The patient will receive 200 mcg, or 0.2 mg.

The medication is available in a strength of 0.2 mg/mL; therefore, the patient will receive 1 mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 22: Antihypertensive Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient has a new order for the adrenergic drug doxazosin (Cardura). When providing education about this drug, the nurse will include which instructions?
  - a. “Weigh yourself daily, and report any weight loss to your prescriber.”
  - b. “Increase your potassium intake by eating more bananas and apricots.”
  - c. “The impaired taste associated with this medication usually goes away in 2 to 3 weeks.”
  - d. “Be sure to lie down after taking the first dose, because first-dose hypotension may make you dizzy.”

ANS: D

A patient who is starting doxazosin should take the first dose while lying down because there is a first-dose hypotensive effect with this medication. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. A patient with severe liver disease is receiving the angiotensin-converting enzyme (ACE) inhibitor, captopril (Capoten). The nurse is aware that the advantage of this drug for this patient is which characteristic?
  - a. Captopril rarely causes first-dose hypotensive effects.
  - b. Captopril has little effect on electrolyte levels.
  - c. Captopril is a prodrug and is metabolized by the liver before becoming active.
  - d. Captopril does not need to be metabolized by the liver before becoming active because it is not a prodrug.

ANS: D

A prodrug relies on a functioning liver to be converted to its active form. Captopril is not a prodrug, and therefore it would be safer for the patient with liver dysfunction.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. During a follow-up visit, the health care provider examines the fundus of the patient's eye. Afterward, the patient asks the nurse, “Why is he looking at my eyes when I have high blood pressure? It does not make sense to me!” What is the best response by the nurse?
  - a. “We need to monitor for drug toxicity.”
  - b. “We must watch for increased intraocular pressure.”
  - c. “The provider is assessing for visual changes that may occur with drug therapy.”
  - d. “The provider is making sure the treatment is effective over the long term.”

ANS: D



The physician would examine the fundus of a patient's eyes during antihypertensive therapy because it is a more reliable indicator than blood pressure readings of the long-term effectiveness of treatment.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

4. The nurse is preparing for a community education program on hypertension. Which of these parameters determine the regulation of arterial blood pressure?
- Cardiac output and systemic vascular resistance
  - Heart rate and peripheral resistance
  - Blood volume and renal blood flow
  - Myocardial contractility and arteriolar constriction

ANS: A

Blood pressure is determined by the product of cardiac output and systemic vascular resistance. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. When counseling a male patient about the possible adverse effects of antihypertensive drugs, the nurse will discuss which potential problem?
- Impotence
  - Bradycardia
  - Increased libido
  - Weight gain

ANS: A

Sexual dysfunction is a common complication of antihypertensive medications and may be manifested in men as decreased libido or impotence. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is reviewing drug therapy for hypertension. According to the *JNC-8* guidelines, antihypertensive drug therapy for a newly diagnosed hypertensive African-American patient would most likely include which drug or drug classes?
- Vasodilators alone
  - ACE inhibitors alone
  - Calcium channel blockers with thiazide diuretics
  - Beta blockers with thiazide diuretics

ANS: C

According to the *JNC-8* guidelines, calcium channel blockers and thiazide diuretics are recommended as first-line therapy for management of hypertension in African-American patients. The other drugs are not recommended as first-line drugs for this group.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is creating a plan of care for a patient with a new diagnosis of hypertension. Which is a potential human needs statement for the patient taking antihypertensive medications?
- Altered GI elimination (diarrhea)
  - Altered sexual function
  - Altered urinary elimination (urge incontinence)
  - Need for effective perception

ANS: B

Altered sexual function is a potential human needs statement related to possible adverse effects of antihypertensive drug therapy. The other human needs statements are not appropriate.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient's blood pressure elevates to 270/150 mm Hg, and a hypertensive emergency is obvious. He is transferred to the intensive care unit and started on a sodium nitroprusside (Nipride) drip to be titrated per his response. With this medication, the nurse knows that the maximum dose of this drug should be infused for how long?
- 10 minutes
  - 30 minutes
  - 1 hour
  - 24 hours

ANS: A

Sodium nitroprusside is a potent vasodilator and may lead to extreme decreases in the patient's blood pressure. For this reason, it is never infused at the maximum dose for more than 10 minutes. If this drug does not control a patient's blood pressure after 10 minutes, it will most likely be ordered to be discontinued. The other times listed are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient with primary hypertension is prescribed drug therapy for the first time. The patient asks how long drug therapy will be needed. Which answer by the nurse is the correct response?
- "This therapy will take about 3 months."
  - "This therapy will take about a year."
  - "This therapy will go on until your symptoms disappear."
  - "Therapy for high blood pressure is usually lifelong."

ANS: D

There is no cure for the disease, and treatment will be lifelong. The other answers are not appropriate.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient who has been taking antihypertensive drugs for a few months states that a new, persistent dry cough is very bothersome. The nurse knows that this cough is an adverse effect of which class of antihypertensive drugs?
- Beta blockers
  - Angiotensin-converting enzyme (ACE) inhibitors
  - Angiotensin II receptor blockers (ARBs)
  - Calcium channel blockers

ANS: B

ACE inhibitors cause a characteristic dry, nonproductive cough that reverses when therapy is stopped. The other drug classes do not cause this cough.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A pregnant woman is experiencing hypertension. The nurse knows that which drug is used for a pregnant patient who is experiencing hypertension?
- Mannitol (Osmitol)
  - Enalapril (Vasotec)
  - Hydrochlorothiazide (HydroDIURIL)
  - Methyldopa (Aldomet)

ANS: D

Methyldopa is used in the treatment of hypertension during pregnancy. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological Therapies

12. A patient with type 2 diabetes mellitus has been found to have trace proteinuria. The prescriber writes an order for an angiotensin-converting enzyme (ACE) inhibitor. What is the main reason for prescribing this class of drug for this patient?
- Cardioprotective effects
  - Renal protective effects
  - Reduces blood pressure
  - Promotes fluid output

ANS: B

ACE inhibitors have been shown to have a protective effect on the kidneys because they reduce glomerular filtration pressure. This is one reason that they are among the cardiovascular drugs of choice for diabetic patients. The other drugs do not have this effect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

13. The nurse is reviewing the orders for a patient and notes a new order for an angiotensin-converting enzyme (ACE) inhibitor. The nurse checks the current medication orders, knowing that this drug class may have a serious interaction with what other drug class?
- Calcium channel blockers
  - Diuretics
  - Nonsteroidal anti-inflammatory drugs
  - Nitrates

ANS: C

Nonsteroidal anti-inflammatory drugs (NSAIDs) such as ibuprofen can reduce the antihypertensive effect of ACE inhibitors. In addition, the use of NSAIDs and ACE inhibitors may also predispose patients to the development of acute renal failure.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

14. An older adult patient will be taking a vasodilator for hypertension. Which adverse effect is of most concern for the older adult patient taking this class of drug?
- Dry mouth
  - Restlessness
  - Constipation
  - Hypotension

ANS: D

The older adult patient is more sensitive to the blood pressure-lowering effects of vasodilators, and consequently experience more problems with hypotension, dizziness, and syncope. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## MULTIPLE RESPONSE

1. When teaching a patient about antihypertensive drug therapy, which statements by the nurse are correct? (*Select all that apply.*)
- "You need to have your blood pressure checked once a week and keep track of the readings."
  - "If you notice that the symptoms have gone away, you should be able to stop taking the drug."
  - "An exercise program may be helpful in treating hypertension, but let's check with your doctor first."
  - "If you experience severe side effects, stop the medicine and let us know at your next office visit."
  - "Most over-the-counter decongestants are compatible with antihypertensive drugs."
  - "Please continue taking the medication, even if you are feeling better."

ANS: A, C, F

Keeping a record of weekly blood pressure checks helps to monitor the effectiveness of the therapy. Remind the patient not to stop taking the medication just because he or she is feeling better. Abruptly stopping the medication may lead to rebound hypertension. Therapy is often lifelong, even though symptoms may improve. Many over-the-counter drugs, especially decongestants, have serious interactions with antihypertensive drugs. The patient needs to consult his or her prescriber before taking any other medication.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient is to receive enalapril (Vasotec) 5 mg IV every 6 hours. Each dose is given over 5 minutes. The medication is available in an injectable form, 1.25 mg/mL. Identify how many milliliters of medication will the nurse draw up for each dose. \_\_\_\_\_

ANS:

4 mL

$1.25\text{mg}:1\text{ mL} :: 5\text{ mg}:x\text{ mL}.$

$(1.25 \times x) = (1 \times 5); 1.25x = 5; x = 4.$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 23: Antianginal Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. When the nurse is administering topical nitroglycerin ointment, which technique is correct?
  - a. Apply the ointment on the skin on the forearm.
  - b. Apply the ointment only in the case of a mild angina episode.
  - c. Remove the old ointment before new ointment is applied.
  - d. Massage the ointment gently into the skin, and then cover the area with plastic wrap.

ANS: C

The old ointment should be removed before a new dose is applied. The ointment should be applied to clean, dry, hairless skin of the upper arms or body, not below the elbows or below the knees. The ointment is not massaged or spread on the skin, and it is not indicated for the treatment of acute angina.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. The nurse is giving intravenous nitroglycerin to a patient who has just been admitted because of an acute myocardial infarction. Which statement is true regarding the administration of the intravenous form of this medication?
  - a. The solution will be slightly colored green or blue.
  - b. The intravenous form is given by bolus injection.
  - c. It can be given in infusions with other medications.
  - d. Non-polyvinylchloride (non-PVC) plastic intravenous bags and tubing must be used.

ANS: D

The non-PVC infusion kits are used to avoid absorption and/or uptake of the nitrate by the intravenous tubing and bag and/or decomposition of the nitrate. The medication is given by infusion via an infusion pump and not with other medications. It is not given by bolus injection. If the parenteral solution is not clear, it should be discarded.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

3. A patient has been diagnosed with angina and will be given a prescription for sublingual nitroglycerin tablets. When teaching the patient how to use sublingual nitroglycerin, the nurse will include which instruction?
  - a. Take up to 5 doses at 15-minute intervals for an angina attack.
  - b. If the tablet does not dissolve quickly, chew the tablet for maximal effect.
  - c. If the chest pain is not relieved after one tablet, call 911 immediately.
  - d. Wait 1 minute between doses of sublingual tablets, up to 3 doses.

ANS: C

According to current guidelines, if the chest pain or discomfort is not relieved in 5 minutes, after 1 dose, the patient (or family member) must call 911 immediately. The patient may take one more tablet while awaiting emergency care and may take a third tablet 5 minutes later, but no more than a total of three tablets. The sublingual dose is placed under the tongue, and the patient needs to avoid swallowing until the tablet has dissolved.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

4. A 74-year-old professional golfer has chest pain that occurs toward the end of his golfing games. He says the pain usually goes away after one or two sublingual nitroglycerin tablets and rest. What type of angina is he experiencing?
- Classic
  - Variant
  - Unstable
  - Prinzmetal

ANS: A

Classic, or chronic stable, angina is triggered by either exertion or stress and usually subsides within 15 minutes with either rest or drug therapy.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

5. A patient arrives in the emergency department with severe chest pain. The patient reports that the pain has been occurring off and on for a week now. Which assessment finding would indicate the need for cautious use of nitrates and nitrites?
- Blood pressure of 88/62 mm Hg
  - Apical pulse rate of 110 beats/min
  - History of renal disease
  - History of a myocardial infarction 2 years ago

ANS: A

Hypotension is a possible contraindication to the use of nitrates because the medications may cause the blood pressure to decrease. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. A calcium channel blocker (CCB) is prescribed for a patient, and the nurse provides instructions to the patient about the medication. Which instruction is correct?
- Chew the tablet for faster release of the medication.
  - To increase the effect of the drug, take it with grapefruit juice.
  - If the adverse effects of chest pain, fainting, or dyspnea occur, discontinue the medication immediately.
  - A high-fiber diet with plenty of fluids will help prevent the constipation that may

occur.

ANS: D

Constipation is a common effect of CCBs, and a high-fiber diet and plenty of fluids will help to prevent it. Grapefruit juice decreases the metabolism of CCBs. Extended-release tablets must never be chewed or crushed. These medications should never be discontinued abruptly because of the risk for rebound hypertension.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. When applying transdermal nitroglycerin patches, which instruction by the nurse is correct?
- “Rotate application sites with each dose.”
  - “Use only the chest area for application sites.”
  - “Temporarily remove the patch if you go swimming.”
  - “Apply the patch to the same site each time.”

ANS: A

Application sites for transdermal nitroglycerin patches need to be rotated. Apply the transdermal patch to any nonhairy area of the body; the old patch should first be removed. The patch may be worn while swimming, but if it does come off, it should be replaced after the old site is cleansed.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient has been taking a beta blocker for 4 weeks as part of his antianginal therapy. He also has type 2 diabetes mellitus and hyperthyroidism. When discussing possible adverse effects, the nurse will include which information?
- “Watch for unusual weight loss.”
  - “Monitor your pulse for increased heart rate.”
  - “Use the hot tub and sauna at the gym as long as time is limited to 15 minutes.”
  - “Monitor your blood glucose levels for possible hypoglycemia or hyperglycemia.”

ANS: D

Beta blockers can cause both hypoglycemia and hyperglycemia. They may also cause weight gain if heart failure is developing, and decreased pulse rate. The use of hot tubs and saunas is not recommended because of the possibility of hypotensive episodes.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

9. What action is often recommended to help reduce tolerance to transdermal nitroglycerin therapy?
- Omit a dose once a week.
  - Leave the patch on for 2 days at a time.
  - Cut the patch in half for 1 week until the tolerance subsides.
  - Remove the patch at bedtime, and then apply a new one in the morning.



ANS: D

To prevent tolerance, remove the transdermal patch at night for 8 hours, and apply a new patch in the morning. Transdermal patches must *never* be cut or left on for 2 days, and doses must not be omitted.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. While assessing a patient who is taking a beta blocker for angina, the nurse knows to monitor for which adverse effect?
- Nervousness
  - Hypertension
  - Bradycardia
  - Dry cough

ANS: C

Adverse effects of beta blockers include bradycardia, hypotension, dizziness, lethargy, impotence, and several other effects, but not dry cough or nervousness.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. When teaching a patient who has a new prescription for transdermal nitroglycerin patches, the nurse tells the patient that these patches are most appropriately used for which situation?
- To prevent low blood pressure
  - To relieve shortness of breath
  - To prevent the occurrence of angina
  - To keep the heart rate from rising too high during exercise

ANS: C

Transdermal dosage formulations of nitroglycerin are used for the long-term prophylactic management (prevention) of angina pectoris. Transdermal nitroglycerin patches are not appropriate for the relief of shortness of breath, to prevent palpitations, or to control the heart rate during exercise.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is providing education about the use of sublingual nitroglycerin tablets. She asks the patient, “What would you do if you experienced chest pain while mowing your yard? You have your bottle of sublingual nitroglycerin with you.” Which actions by the patient are appropriate in this situation? (*Select all that apply.*)
- Stop the activity, and lie down or sit down.
  - Call 911 immediately.

- c. Call 911 if the pain is not relieved after taking one sublingual tablet.
- d. Call 911 if the pain is not relieved after taking three sublingual tablets in 15 minutes.
- e. Place a tablet under the tongue.
- f. Place a tablet in the space between the gum and cheek.
- g. Take another sublingual tablet if chest pain is not relieved after 5 minutes, up to three total.

ANS: A, C, E, G

With sublingual forms, the medication is taken at the first sign of chest pain, not delayed until the pain is severe. The patient needs to sit down or lie down and take one sublingual tablet. According to current guidelines, if the chest pain or discomfort is not relieved in 5 minutes, after 1 dose, the patient (or family member) must call 911 immediately. The patient can take one more tablet while awaiting emergency care and may take a third tablet 5 minutes later, but no more than a total of three tablets. These guidelines reflect the fact that angina pain that does not respond to nitroglycerin may indicate a myocardial infarction. The sublingual dose is placed under the tongue, and the patient needs to avoid swallowing until the tablet has dissolved. Placing a tablet between the gum and cheek is the buccal route.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient with a history of angina will be started on ranolazine (Ranexa). The nurse is reviewing the patient's history and will note potential contraindications to this drug therapy if which condition is present? (*Select all that apply.*)
- a. Type 2 diabetes mellitus
  - b. Prolonged QT interval on the electrocardiogram
  - c. Heart failure
  - d. Closed-angle glaucoma
  - e. Decreased liver function

ANS: B, E

Ranolazine is contraindicated in patients with pre-existing QT prolongation or hepatic impairment. The other options are not contraindications.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient will be receiving metoprolol (Lopressor) 5 mg IV push. The medication is available in a strength of 1 mg/mL. Identify how much medication will the nurse draw up for each dose. \_\_\_\_\_

ANS:

5 mL

1 mg:1 mL :: 5 mg:x mL.

$$(1 \times x) = (1 \times 5); 1x = 5; x = 5.$$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 24: Heart Failure Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient about to receive a morning dose of digoxin has an apical pulse of 50 beats/min. What will the nurse do next?
  - a. Administer the dose.
  - b. Administer the dose, and notify the prescriber.
  - c. Check the radial pulse for 1 full minute.
  - d. Withhold the dose, and notify the prescriber.

ANS: D

Digoxin doses are held and the prescriber notified if the apical pulse is 60 beats/min or lower or is higher than 100 beats/min. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient is taking digoxin (Lanoxin) and a loop diuretic daily. When the nurse enters the room with the morning medications, the patient states, "I am seeing a funny yellow color around the lights." What is the nurse's next action?
  - a. Assess the patient for symptoms of digoxin toxicity.
  - b. Withhold the next dose of the diuretic.
  - c. Administer the digoxin and diuretic together as ordered.
  - d. Document this finding, and reassess in 1 hour.

ANS: A

Seeing colors around lights is one potential indication of developing digoxin toxicity. If a patient indicates these visual problems, the nurse needs to assess for other signs and symptoms of digoxin toxicity including bradycardia, headache, dizziness, confusion, nausea, and blurred vision, and then notify the prescriber. Administering the drug or withholding the diuretic are incorrect options.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. While assessing a patient who is receiving intravenous digitalis, the nurse recognizes that the drug has a negative chronotropic effect. How would this drug effect be evident in the patient?
  - a. Decreased blood pressure
  - b. Decreased heart rate
  - c. Decreased conduction
  - d. Decreased ectopic beats

ANS: B

A negative chronotropic effect results in a *decreased* heart rate; this is one effect of cardiac glycosides. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient has been taking digoxin at home but took an accidental overdose and has developed toxicity. The patient has been admitted to the telemetry unit, where the physician has ordered digoxin immune Fab (Digifab). The patient asks the nurse why the medication is ordered. What is the nurse's best response?
- "It will increase your heart rate."
  - "This drug helps to lower your potassium levels."
  - "It causes your heart to beat at a slower rate."
  - "This drug is an antidote to digoxin and will help your heart to return to normal functioning."

ANS: D

Digoxin immune Fab (Digifab) is the antidote for a severe digoxin overdose and is given to reverse the life-threatening cardiotoxic effects. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient has been placed on a milrinone (Primacor) infusion as part of the therapy for end-stage heart failure. What adverse effect of this drug will the nurse watch for when assessing this patient during the infusion?
- Hypertension
  - Hyperkalemia
  - Nausea and vomiting
  - Cardiac dysrhythmias

ANS: D

The primary adverse effects seen with milrinone are cardiac dysrhythmias, mainly ventricular. It may also cause hypotension, hypokalemia, and other effects, but not nausea and vomiting.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. A patient has a digoxin level of 1.1 ng/mL. Which interpretation by the nurse is correct?
- It is below the therapeutic level.
  - It is within the therapeutic range.
  - It is above the therapeutic level.
  - It is at a toxic level.

ANS: B

The normal therapeutic drug level of digoxin is between 0.5 and 2 ng/mL. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is reviewing discharge teaching for a patient who will be taking digoxin (Lanoxin) therapy. The nurse will teach the patient to avoid which foods when taking the digoxin?
- Leafy green vegetables
  - Dairy products
  - Grapefruit juice
  - Bran muffins

ANS: D

Bran, in large amounts, may decrease the absorption of oral digitalis drugs. The other foods do not affect digoxin levels.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. In assessing a patient before administration of a cardiac glycoside, the nurse knows that which lab result can increase the toxicity of the drug?
- Potassium level 2.8 mEq/L
  - Potassium level 4.9 mEq/L
  - Sodium level 140 mEq/L
  - Calcium level 10 mg/dL

ANS: A

Hypokalemia increases the chance of digitalis toxicity. The other levels listed are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse administering the phosphodiesterase inhibitor milrinone (Primacor) recognizes that this drug will have a positive inotropic effect. Which result reflects this effect?
- Increased heart rate
  - Increased blood vessel dilation
  - Increased force of cardiac contractions
  - Increased conduction of electrical impulses across the heart

ANS: C

Positive inotropic drugs increase myocardial contractility, thus increasing the force of cardiac conduction. Positive chronotropic drugs increase the heart rate. Positive dromotropic drugs increase the conduction of electrical impulses across the heart. Blood vessel dilation is not affected.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse notes in a patient's medical record that nesiritide (Natrecor) has been ordered. Based on this order, the nurse interprets that the patient has which disorder?
- Atrial fibrillation

- b. Severe, life-threatening heart failure
- c. Class II heart failure
- d. Acute hypertensive crisis

ANS: B

Nesiritide is indicated for the treatment of severe, life-threatening heart failure.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. When administering digoxin immune Fab (Digibind) to a patient with severe digoxin toxicity, the nurse knows that each vial can bind with how much digoxin?
- a. 0.5 mg
  - b. 5 mg
  - c. 5.5 mg
  - d. 15 mg

ANS: A

One vial of digoxin immune Fab binds 0.5 mg of digoxin. The other options are incorrect.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. A patient is in the intensive care unit and receiving an infusion of milrinone (Primacor) for severe heart failure. The prescriber has written an order for an intravenous dose of furosemide (Lasix). How will the nurse give this drug?
- a. Infuse the drug into the same intravenous line as the milrinone.
  - b. Stop the milrinone, flush the line, and then administer the furosemide.
  - c. Administer the furosemide in a separate intravenous line.
  - d. Notify the prescriber that the furosemide cannot be given at this time.

ANS: C

Furosemide must not be injected into an intravenous line with milrinone because it will precipitate immediately. The infusion must not be stopped because of the patient's condition. A separate line will be needed. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

### MULTIPLE RESPONSE

1. When a patient is experiencing digoxin toxicity, which clinical situation would necessitate the use of digoxin immune Fab (Digifab)? (*Select all that apply.*)
- a. The patient reports seeing colorful halos around lights.
  - b. The patient's serum potassium level is above 5 mEq/L.
  - c. The patient is experiencing nausea and anorexia.
  - d. The patient is experiencing severe sinus bradycardia that does not respond to cardiac pacing.

- e. The patient has received an overdose of greater than 10 mg of digoxin.
- f. The patient reports fatigue and headaches.

ANS: B, D, E

Clinical situations that would require the use of digoxin immune Fab in a patient with digoxin toxicity include serum potassium level above 5 mEq/L, severe sinus bradycardia that does not respond to cardiac pacing, or an overdose of more than 10 mg of digoxin. Seeing colorful halos around lights and experiencing nausea, anorexia, fatigue, and headaches are potential adverse effects of digoxin therapy but are not necessarily reasons for digoxin immune Fab treatment.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. Which drug classes are considered first-line treatment for heart failure? (*Select all that apply.*)
- a. Angiotensin-converting enzyme (ACE) inhibitors
  - b. Angiotensin II receptor blockers (ARBs)
  - c. Digoxin (cardiac glycoside)
  - d. Beta blockers
  - e. Nesiritide (Natrekor), the B-type natriuretic peptide

ANS: A, B, D

ACE inhibitors, ARBs, and certain beta blockers are now considered the first-line treatments for heart failure. Digoxin is used when the first-line treatments are not successful; nesiritide is considered a last-resort treatment.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. The medication order for a 5-year-old child reads, "Give digoxin elixir, 15 mcg/kg, PO now." Convert the 15 micrograms to milligrams. \_\_\_\_\_

ANS:

0.015 mg

1000 mcg:1 mg :: 15 mcg:x mg.

$(1000 \times x) = (1 \times 15)$ ;  $1000x = 15$ ;  $x = 15$ ;  $15 \div 1000 = 0.015$  mg.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



## Chapter 25: Antidysrhythmic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is reviewing the classes of antidysrhythmic drugs. Amiodarone (Cordarone) is classified on the Vaughan Williams classification as a class III drug, which means it works by which mechanism of action?
  - a. Blocking slow calcium channels
  - b. Prolonging action potential duration
  - c. Blocking sodium channels and affecting phase 0
  - d. Decreasing spontaneous depolarization and affecting phase 4

ANS: B

Vaughan Williams class III drugs (amiodarone, dronedarone, sotalol, ibutilide, and dofetilide) increase the action potential duration by prolonging repolarization in phase 3. The other answers are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient is taking procainamide (Pronestyl) for a cardiac dysrhythmia. The nurse will monitor the patient for which possible adverse effect?
  - a. Bradycardia
  - b. Shortened QT interval
  - c. Dyspnea
  - d. Diarrhea

ANS: D

Diarrhea is a potential adverse effect of procainamide therapy. Prolonged QT interval on the ECG is also possible. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The nurse will monitor the patient who has been taking dronedarone (Multaq) for which adverse effect?
  - a. Decreased white blood cell count
  - b. Liver toxicity
  - c. Dehydration
  - d. Peripheral edema

ANS: B

The FDA has issued an advisory regarding the potential for hepatotoxicity related to dronedarone therapy. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. A patient will be discharged on quinidine sulfate (Quinidex) extended-release tablets for the treatment of ventricular ectopy. The nurse will include which information in the teaching plan?
- The medication should be stopped once the cardiac symptoms subside.
  - Signs of cinchonism, such as tinnitus, loss of hearing, or slight blurring of vision, may occur.
  - It is important to use sunscreen products when outside because of increased photosensitivity.
  - If any tablet or capsule is visible in the stool, contact the prescriber immediately.

ANS: B

Quinidine may cause the symptoms of cinchonism, including tinnitus, loss of hearing, slight blurring of vision, and gastrointestinal upset. The medication will need to be continued even after cardiac symptoms subside, or the symptoms may return. Tablets or capsules that are visible in the stool are actually the wax matrices that contained the drug; the medication is extracted while in the intestines. Photosensitivity occurs with class III drugs, not with quinidine (class Ia).

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient is in the intensive care unit because of an acute myocardial infarction. He is experiencing severe ventricular dysrhythmias. The nurse will prepare to give which drug of choice for this dysrhythmia?
- Diltiazem (Cardizem)
  - Verapamil (Calan)
  - Amiodarone (Cordarone)
  - Adenosine (Adenocard)

ANS: C

Amiodarone (Cordarone) is the drug of choice for ventricular dysrhythmias according to the Advanced Cardiac Life Support guidelines. The other drugs are not used for acute ventricular dysrhythmias.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is preparing to administer adenosine (Adenocard) to a patient who is experiencing an acute episode of paroxysmal supraventricular tachycardia. When giving this medication, which is important to remember?
- The onset of action occurs within 5 minutes.
  - The medication must be given as a slow intravenous (IV) push.
  - Asystole may occur for a few seconds after administration.
  - The medication has a long half-life, and therefore duration of action is very long.

ANS: C

Adenosine has an extremely short half-life of less than 10 seconds; its onset occurs within 1 minute; and it must be given as a fast IV push injection. In addition, a very brief episode of asystole may occur after administration.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A 62-year-old man is to receive lidocaine as treatment for a symptomatic dysrhythmia. Upon assessment, the nurse notes that he has a history of alcoholism and has late-stage liver failure. The nurse will expect which adjustments to his drug therapy?
- The dosage will be reduced by 50%.
  - A diuretic will be added to the lidocaine.
  - The lidocaine will be changed to an oral dosage form.
  - An increased dosage of lidocaine will be prescribed so as to obtain adequate blood levels.

ANS: A

Because lidocaine is metabolized primarily by the liver, a reduction of the dosage by 50% may be necessary in cases of liver failure or cirrhosis. Lidocaine does not come in oral form.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. A patient has been started on therapy of a continuous infusion of lidocaine after receiving a loading dose of the drug. The nurse will monitor the patient for which adverse effect?
- Drowsiness
  - Nystagmus
  - Dry mouth
  - Convulsions

ANS: D

Convulsions are possible if lidocaine reaches toxic levels. The other options are not adverse effects of lidocaine.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. When starting a patient on antidysrhythmic therapy, the nurse will remember that which problem is a potential adverse effect of any antidysrhythmic drug?
- Deficiency of fat-soluble vitamins
  - Hyperkalemia
  - Heart failure
  - Dysrhythmias

ANS: D

Many antidysrhythmics are themselves capable of producing new dysrhythmias (the *prodysrhythmic effect*). The other options are not adverse effects of antidysrhythmic drugs.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient is in the emergency department with a new onset of rapid-rate atrial fibrillation, and the nurse is preparing a continuous infusion. Which drug is most appropriate for this dysrhythmia?
- Diltiazem (Cardizem)
  - Atenolol (Tenormin)
  - Lidocaine
  - Adenosine (Adenocard)

ANS: A

Diltiazem (Cardizem) is indicated for the temporary control of a rapid ventricular response in a patient with atrial fibrillation or flutter and paroxysmal supraventricular tachycardia. It is given by continuous infusion after a loading dose given by IV bolus. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. The nurse notes in the patient's medication orders that the patient will be taking ibutilide (Corvert). Based on this finding, the nurse interprets that the patient has which disorder?
- Ventricular ectopy
  - Atrial fibrillation
  - Supraventricular tachycardia
  - Bradycardia

ANS: B

Ibutilide (Corvert) is one of two class III antidysrhythmic drugs available for rapid conversion of these atrial fibrillations and atrial flutters into normal sinus rhythm.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. Which patient-teaching instructions are appropriate for a patient taking an antidysrhythmic drug? (*Select all that apply.*)
- "Do not chew or crush extended-release forms of medication."
  - "Take the medication with food if gastrointestinal distress occurs."
  - "If a dose is missed, the missed dose should be taken along with the next dose that is due to be taken."
  - "Take the medications with an antacid if gastrointestinal distress occurs."
  - "Limit or avoid the use of caffeine."
  - "The presence of a capsule in the stool should be reported to the physician immediately."

ANS: A, B, E

Appropriate teaching instructions for a patient taking an antidysrhythmic drug include: do not chew or crush extended-release forms; if gastrointestinal distress occurs, take the drug with food; and limit or avoid the use of caffeine. Do *not* double medication doses or take medications with an antacid. The presence of a portion of a capsule or tablet in the stool is actually the wax matrix that carried the medication, which has been absorbed. The physician does not need to be notified.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. The nurse is monitoring for adverse effects in a patient who is receiving an amiodarone (Cordarone) infusion. Which are adverse effects for amiodarone? (*Select all that apply.*)
- Tachycardia
  - Constipation
  - Chest pain
  - QT prolongation
  - Headache
  - Hypotension
  - Blue-gray coloring of the skin on the face, arms, and neck

ANS: B, D, F, G

There are numerous adverse effects of amiodarone, including pulmonary toxicity, thyroid disorders, bradycardia, hypotension, SA node dysfunction, QT prolongation, blue-gray coloring of the skin (face, arms, and neck), constipation, and others. Tachycardia, chest pain, and headache are not adverse effects of amiodarone therapy.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. The nurse is preparing to administer a bolus dose of verapamil (Calan) as follows: "Give 5-mg bolus of verapamil, IV push, over 2 minutes. May repeat in 30 minutes if needed." The medication is available in a 2.5-mg/mL strength solution. Identify how many milliliters will the nurse draw into the syringe for this dose. \_\_\_\_\_

ANS:

2 mL

2.5 mg:1 mL :: 5 mg:  $x$  mL.

$(2.5 \times x) = (1 \times 5)$ ;  $2.5x = 5$ ;  $x = 2$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 26: Coagulation Modifier Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. A patient has been prescribed warfarin (Coumadin) in addition to a heparin infusion. The patient asks the nurse why he has to be on two medications. The nurse's response is based on which rationale?
  - a. The oral and injection forms work synergistically.
  - b. The combination of heparin and an oral anticoagulant results in fewer adverse effects than heparin used alone.
  - c. The warfarin is used to reach an adequate level of anticoagulation when heparin alone is unable to do so.
  - d. Heparin is used to start anticoagulation so as to allow time for the blood levels of warfarin to reach adequate levels.

ANS: D

This overlap therapy is required in patients who have been receiving heparin for anticoagulation and are to be switched to warfarin so that prevention of clotting is continuous. This overlapping is done purposefully to allow time for the blood levels of warfarin to rise, so that when the heparin is eventually discontinued, therapeutic anticoagulation levels of warfarin will have been achieved. Recommendations are to continue overlap therapy of the heparin and warfarin for at least 5 days; the heparin is stopped after day 5 when the international normalized ratio (INR) is above 2.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient is receiving thrombolytic therapy, and the nurse monitors the patient for adverse effects. What is the most common undesirable effect of thrombolytic therapy?
  - a. Dysrhythmias
  - b. Nausea and vomiting
  - c. Anaphylactic reactions
  - d. Internal and superficial bleeding

ANS: D

Bleeding, both internal and superficial, as well as intracranial, is the most common undesirable effect of thrombolytic therapy. The other options list possible adverse effects of thrombolytic drugs, but they are not the most common effects.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient who has been anticoagulated with warfarin (Coumadin) has been admitted for gastrointestinal bleeding. The history and physical examination indicates that the patient may have taken too much warfarin. The nurse anticipates that the patient will receive which antidote?
  - a. Vitamin E

- b. Vitamin K
- c. Protamine sulfate
- d. Potassium chloride

ANS: B

Vitamin K is given to reverse the anticoagulation effects of warfarin toxicity. Protamine sulfate is the antidote for heparin overdose. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. When administering heparin subcutaneously, the nurse will follow which procedure?
- a. Aspirating the syringe before injecting the medication
  - b. Massaging the site after injection
  - c. Use the same area for each injection.
  - d. Using a 1/2- to 5/8-inch 25- to 27-gauge needle

ANS: D

A 1/2- to 5/8-inch 25- to 27-gauge needle is the correct needle to use for a subcutaneous heparin injection. Aspirating before the injection and massaging the site after the injection encourage hematoma formation at the injection site. Injection sites need to be rotated with each injection.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient has been instructed to take one enteric-coated low-dose aspirin a day as part of therapy to prevent strokes. The nurse will provide which instruction when providing patient teaching about this medication?
- a. Aspirin needs to be taken on an empty stomach to ensure maximal absorption.
  - b. Low-dose aspirin therapy rarely causes problems with bleeding.
  - c. Take the medication with 6 to 8 ounces of water and with food.
  - d. Coated tablets may be crushed if necessary for easier swallowing.

ANS: C

Enteric-coated aspirin is best taken with 6 to 8 ounces of water and with food to help decrease gastrointestinal upset. Enteric-coated tablets should not be crushed. Risk for bleeding increases with aspirin therapy, even at low doses.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient will be receiving a thrombolytic drug as part of the treatment for acute myocardial infarction. The nurse explains to the patient that this drug is used for which purpose?
- a. To relieve chest pain
  - b. To prevent further clot formation
  - c. To dissolve the clot in the coronary artery
  - d. To control bleeding in the coronary vessels

ANS: C

Thrombolytic drugs lyse, or dissolve, thrombi. They are not used to prevent further clot formation or to control bleeding. As a result of dissolving of the thrombi, chest pain may be relieved, but that is not the primary purpose of thrombolytic therapy.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient is receiving heparin therapy as part of the treatment for a pulmonary embolism. The nurse monitors the results of which laboratory test to check the drug's effectiveness?
- Bleeding times
  - Activated partial thromboplastin time (aPTT)
  - Prothrombin time/international normalized ratio (PT/INR)
  - Vitamin K levels

ANS: B

Ongoing aPTT values are used to monitor heparin therapy. PT/INR is used to monitor warfarin therapy. The other two options are not used to monitor anticoagulant therapy.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse notes in the patient's medication orders that the patient will be starting anticoagulant therapy. What is the primary goal of anticoagulant therapy?
- Stabilizing an existing thrombus
  - Dissolving an existing thrombus
  - Preventing thrombus formation
  - Dilating the vessel around a clot

ANS: C

Anticoagulants prevent thrombus formation but do not dissolve or stabilize an existing thrombus, nor do they dilate vessels around a clot.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient is being discharged on anticoagulant therapy. The nurse will include in the patient-education conversation that it is important to avoid herbal products that contain which substance?
- Valerian
  - Ginkgo
  - Soy
  - Saw palmetto

ANS: B

Capsicum pepper, feverfew, garlic, ginger, ginkgo, St. John's wort, and ginseng are some herbal products that have potential interactions with anticoagulants, especially with warfarin.



DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Assessment  
MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

10. A patient has had recent mechanical heart valve surgery and is receiving anticoagulant therapy. While monitoring the patient's laboratory work, the nurse interprets that the patient's international normalized ratio (INR) level of 3 indicates: which of these?
- The patient is not receiving enough warfarin to have a therapeutic effect.
  - The patient's warfarin dose is at therapeutic levels.
  - The patient's intravenous heparin dose is dangerously high.
  - The patient's intravenous heparin dose is at therapeutic levels.

ANS: B

A normal INR (without warfarin) is 1.0. A therapeutic INR for patients who have had mechanical heart valve surgery ranges from 2.5 to 3.5, with a middle value of 3.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation  
MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient has received an overdose of intravenous heparin, and is showing signs of excessive bleeding. Which substance is the antidote for heparin overdose?
- Vitamin E
  - Vitamin K
  - Protamine sulfate
  - Potassium chloride

ANS: C

Protamine sulfate is a specific heparin antidote and forms a complex with heparin, completely reversing its anticoagulant properties. Vitamin K is the antidote for warfarin (Coumadin) overdose. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation  
MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. The nurse is reviewing new medication orders for a patient who has an epidural catheter for administration of pain medications. One of the orders is for enoxaparin (Lovenox), a low-molecular-weight heparin (LMWH). What is the nurse's priority action?
- Give the LMWH as ordered.
  - Double-check the LMWH order with another nurse, and then administer as ordered.
  - Stop the epidural pain medication, and then administer the LMWH.
  - Contact the prescriber because the LMWH cannot be given if the patient has an epidural catheter.

ANS: D

LMWHs are contraindicated in patients with an indwelling epidural catheter; they can be given 2 hours after the epidural is removed. This is very important to remember, because giving an LMWH with an epidural has been associated with epidural hematoma.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. A patient will be taking dabigatran (Pradaxa) as part of treatment for chronic atrial fibrillation. Which statements about dabigatran are true? (*Select all that apply.*)
  - a. The dose of dabigatran is reduced in patients with decreased renal function.
  - b. Bleeding is the most common adverse effect.
  - c. Idarucizumab (Praxbind) is given as an antidote in cases of uncontrolled bleeding.
  - d. Dabigatran levels are monitored by measuring prothrombin time/international normalized ratio (PT/INR) results.
  - e. This drug is a prodrug and becomes activated in the liver.

ANS: A, B, C, E

Dabigatran is excreted extensively in the kidneys, and the dose is dependent upon renal function. The normal dose is 150 mg twice daily, but it will be given at reduced dosage if renal impairment is present. The most common and serious side effect is bleeding. Dabigatran is a prodrug that becomes activated in the liver. Idarucizumab (Praxbind) is a specific dabigatran antidote that reverses the anticoagulant effects of dabigatran for emergency surgery or in life threatening or uncontrolled bleeding. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A patient has received an overdose of enoxaparin (Lovenox). The order was for 30 mg, but the patient received 90 mg. The nurse notes that the patient is showing signs of bleeding (oozing blood from the intravenous sites, increased bruising) and notifies the physician, who prescribes protamine sulfate to cover the excess amount of enoxaparin that the patient received. Calculate how much protamine sulfate the patient will receive. \_\_\_\_\_

ANS:

60 mg

Protamine sulfate is used to reverse the effects of low-molecular-weight heparins (LMWHs). A 1-mg dose of protamine is administered for each milligram of the LMWH. This patient received 60 mg of enoxaparin more than the ordered dose of 30 mg; therefore, 60 mg of protamine sulfate will be used as an antidote.

(1 mg × 60 = 60 mg)

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. An elderly patient has had hip surgery and will be receiving heparin, 4000 units subcutaneously every 12 hours. The heparin is available in vials of 5000 units/mL. Calculate how much heparin the nurse will administer for this dose. \_\_\_\_\_

ANS:

0.8 mL

5000 units:1 mL :: 4000 units: $x$  mL.

Solve for  $x$ :  $(5000 \times x) = (1 \times 4000)$ ;  $5000x = 4000$ ;  $x = 4000 \div 5000 = 0.8$ ;  $x = 0.8$ .

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 27: Antilipemic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient with elevated lipid levels has a new prescription for nicotinic acid (niacin). The nurse informs the patient that which adverse effects may occur with this medication?
  - a. Pruritus, cutaneous flushing
  - b. Tinnitus, urine with a burnt odor
  - c. Myalgia, fatigue
  - d. Blurred vision, headaches

ANS: A

Possible adverse effects of nicotinic acid include pruritus, cutaneous flushing, and gastrointestinal distress. Tinnitus, urine with a burnt odor, and headaches are possible adverse effects of bile acid sequestrants. Headaches are also possible adverse effects of HMG-CoA reductase inhibitors, as are myalgia and fatigue.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient reports having adverse effects with nicotinic acid (niacin). The prescriber has recommended which action to minimize these undesirable effects?
  - a. Take the drug on an empty stomach.
  - b. Take the medication every other day until the effects subside.
  - c. Take an aspirin tablet 30 minutes before taking the drug.
  - d. Take the drug with large amounts of fiber.

ANS: C

The undesirable effects of nicotinic acid can be minimized by starting with a low initial dose, taking the drug with meals, and taking small doses of aspirin or an NSAID with the drug to minimize cutaneous flushing. Fiber intake has no effect on niacin's adverse effects, and it is not within the nurse's scope of practice to suggest a change of medication dosage.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient calls the clinic office saying that the cholestyramine (Questran) powder he started yesterday clumps and sticks to the glass when he tries to mix it. The nurse will suggest what method for mixing this medication for administration?
  - a. Mix the powder in a carbonated soda drink to dissolve it faster.
  - b. Add the powder to any liquid, and stir vigorously to dissolve it quickly.
  - c. Mix the powder with food or fruit, or at least 4 to 6 ounces of fluid.
  - d. Sprinkle the powder into a spoon and take it dry, followed by a glass of water.

ANS: C

Mix the powder with food or at least 4 to 6 ounces of fluid. The powder may not mix completely at first, but patients should be sure to mix the dose as much as possible and then dilute any undissolved portion with additional fluid. The powder should be dissolved for at least 1 full minute. Powder and granule dosages are never to be taken in dry form.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient is concerned about the adverse effects of the fibric acid derivative she is taking to lower her cholesterol level. Which is an adverse effect of this class of medication?
- Constipation
  - Diarrhea
  - Joint pain
  - Dry mouth

ANS: B

Fibric acid derivatives may cause nausea, vomiting, diarrhea, drowsiness, and dizziness. Other effects are listed in Table 27-8. The other options are not adverse effects of fibric acid derivatives.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. While a patient is receiving antilipemic therapy, the nurse knows to monitor the patient closely for the development of which problem?
- Neutropenia
  - Pulmonary problems
  - Vitamin C deficiency
  - Liver dysfunction

ANS: D

Antilipemic drugs may adversely affect liver function; therefore, liver function studies need to be closely monitored. The other options do not reflect problems that may occur with antilipemic drugs.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

6. A patient tells the nurse that he likes to eat large amounts of garlic “to help lower his cholesterol levels naturally.” The nurse reviews his medication history and notes that which drug has a potential interaction with the garlic?
- Acetaminophen (Tylenol)
  - Warfarin (Coumadin)
  - Digoxin (Lanoxin)
  - Phenytoin (Dilantin)

ANS: B

When using garlic, it is recommended to avoid any other drugs that may interfere with platelet and clotting function. These drugs include antiplatelet drugs, anticoagulants, nonsteroidal anti-inflammatory drugs, and aspirin. The other drugs listed do not have known interactions with garlic.

DIF: Cognitive Level: Understanding (Comprehension) TOP: Nursing Process: Planning

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

7. A patient with coronary artery disease asks the nurse about the “good cholesterol” laboratory values. The nurse knows that “good cholesterol” refers to which lipids?
- Triglycerides
  - Low-density lipoproteins (LDLs)
  - Very-low-density lipoproteins (VLDLs)
  - High-density lipoproteins (HDLs)

ANS: D

HDLs are responsible for the “recycling” of cholesterol. HDLs are sometimes referred to as the “good” lipid (or good cholesterol) because they are believed to be cardioprotective. LDLs are known as the “bad” cholesterol.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

8. A patient who has recently started therapy on a statin drug asks the nurse how long it will take until he sees an effect on his serum cholesterol. Which statement would be the nurse’s best response?
- “Blood levels return to normal within a week of beginning therapy.”
  - “It takes 6 to 8 weeks to see a change in cholesterol levels.”
  - “It takes at least 6 months to see a change in cholesterol levels.”
  - “You will need to take this medication for almost a year to see significant results.”

ANS: B

The maximum extent to which lipid levels are lowered may not occur until 6 to 8 weeks after the start of therapy. The other responses are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

9. The nurse will monitor for myopathy (muscle pain) when a patient is taking which class of antilipemic drugs?
- Niacin
  - HMG-CoA reductase inhibitors
  - Fibric acid derivatives
  - Bile acid sequestrants

ANS: B

Myopathy (muscle pain) is a clinically important adverse effect that may occur with HMG–CoA reductase inhibitors. It may progress to a serious condition known as rhabdomyolysis. Patients receiving statin therapy need to be advised to report any unexplained muscular pain or discomfort to their health care providers immediately. The other drugs and drug classes do not cause muscle pain or myopathy.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

10. When teaching a patient who is beginning antilipemic therapy about possible drug–food interactions, the nurse will discuss which food?
- Bran muffins
  - Grapefruit juice
  - Licorice
  - Dairy products

ANS: B

Taking HMG–CoA reductase inhibitors with grapefruit juice may cause complications. Components in grapefruit juice inactivate CYP3A4 in both the liver and intestines. This enzyme plays a key role in statin metabolism. The presence of grapefruit juice in the body may therefore result in sustained levels of unmetabolized statin drug, which increases the risk for major drug toxicity, possibly leading to rhabdomyolysis. The other foods do not interact with these drugs.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

11. The nurse is conducting a class about antilipemic drugs. The antilipemic drug ezetimibe (Zetia) works by which mechanism?
- Inhibiting HMG–CoA reductase
  - Preventing resorption of bile acids from the small intestines
  - Activating lipase, which breaks down cholesterol
  - Inhibiting cholesterol absorption in the small intestine

ANS: D

Ezetimibe selectively inhibits absorption in the small intestine of cholesterol and related sterols. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. Antilipemic drug therapy is prescribed for a patient, and the nurse is providing instructions to the patient about the medication. Which instructions will the nurse include? (*Select all that apply.*)
- Limit fluid intake to prevent fluid overload.
  - Eat extra servings of raw vegetables and fruit.

- c. Report abnormal or unusual bleeding or yellow discoloration of the skin.
- d. Report the occurrence of muscle pain immediately.
- e. Drug interactions are rare with antilipemics.
- f. Take the drug 1 hour before or 2 hours after meals to maximize absorption.

ANS: B, C, D

Instructions need to include preventing constipation by encouraging a diet that is plentiful in raw vegetables, fruit, and bran. Forcing fluids (up to 3000 mL/day unless contraindicated) may also help to prevent constipation. Notify the prescriber if there are any new or troublesome symptoms, abnormal or unusual bleeding, yellow discoloration of the skin, or muscle pain. These drugs are highly protein bound; therefore, they interact with many drugs. Taking these drugs with food may help to reduce gastrointestinal distress.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Health Promotion and Maintenance

## COMPLETION

1. The medication order reads, "Give simvastatin (Zocor) 30 mg daily at bedtime, PO." The medication is available in 20-mg tablets. Identify how many tablets the nurse will administer to the patient. \_\_\_\_\_

ANS:

1.5 tablets

20 mg:1 tablet :: 30 mg:x tablets.

$(20 \times x) = (1 \times 30)$ ;  $20x = 30$ ;  $x = 1.5$  tablets.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



## Chapter 28: Diuretic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. When monitoring a patient who has diabetes and is receiving a carbonic anhydrase inhibitor for edema, the nurse will monitor for which possible adverse effect?
  - a. Metabolic alkalosis
  - b. Elevated blood glucose
  - c. Hyperkalemia
  - d. Mental alertness

ANS: B

An undesirable effect of carbonic anhydrase inhibitors is that they elevate the blood glucose level and cause glycosuria in diabetic patients. They induce metabolic acidosis, making their effectiveness diminishes in 2 to 4 days. In addition, hypokalemia and drowsiness may occur.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse will monitor a patient for signs and symptoms of hyperkalemia if the patient is taking which of these diuretics?
  - a. Hydrochlorothiazide (HydroDIURIL)
  - b. Furosemide (Lasix)
  - c. Acetazolamide (Diamox)
  - d. Spironolactone (Aldactone)

ANS: D

Spironolactone (Aldactone) is a potassium-sparing diuretic, and patients taking this drug must be monitored for signs of hyperkalemia. The other drugs do not cause hyperkalemia but instead cause hypokalemia.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. Mannitol (Osmitrol) has been ordered for a patient with acute renal failure. The nurse will administer this drug using which procedure?
  - a. Intravenously, through a filter
  - b. By rapid intravenous bolus
  - c. By mouth in a single morning dose
  - d. Through a gravity intravenous drip with standard tubing

ANS: A

Mannitol is administered via intravenous infusion through a filter because of possible crystallization. It is not available in oral form. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. Furosemide (Lasix) is prescribed for a patient who is about to be discharged, and the nurse provides instructions to the patient about the medication. Which statement by the nurse is correct?
- “Take this medication in the evening.”
  - “Avoid foods high in potassium, such as bananas, oranges, fresh vegetables, and dates.”
  - “If you experience weight gain, such as 5 pounds or more per week, be sure to tell your physician during your next routine visit.”
  - “Be sure to change positions slowly and rise slowly after sitting or lying so as to prevent dizziness and possible fainting because of blood pressure changes.”

ANS: D

Orthostatic hypotension is a possible problem with diuretic therapy. Foods high in potassium should be eaten more often, and the drug needs to be taken in the morning so that the diuretic effects do not interfere with sleep. A weight gain of 5 pounds or more per week must be reported immediately.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. When reviewing the mechanisms of action of diuretics, the nurse knows that which statement is true about loop diuretics?
- They work by inhibiting aldosterone.
  - They are very potent, having a diuretic effect that lasts at least 6 hours.
  - They have a rapid onset of action and cause rapid diuresis.
  - They are not effective when the creatinine clearance decreases below 25 mL/min.

ANS: C

The loop diuretics have a rapid onset of action; therefore, they are useful when rapid onset is desired. Their effect lasts for about 2 hours, and a distinct advantage they have over thiazide diuretics is that their diuretic action continues even when creatinine clearance decreases below 25 mL/min.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. When monitoring a patient who is taking hydrochlorothiazide (HydroDIURIL), the nurse notes that which drug is most likely to cause a severe interaction with the diuretic?
- Digitalis
  - Penicillin
  - Potassium supplements
  - Aspirin

ANS: A

There is an increased risk for digitalis toxicity in the presence of hypokalemia, which may develop with hydrochlorothiazide therapy. Potassium supplements are often prescribed with hydrochlorothiazide therapy to prevent hypokalemia. The other options do not have interactions with hydrochlorothiazide.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. When a patient is receiving diuretic therapy, which of these assessment measures would best reflect the patient's fluid volume status?
- Blood pressure and pulse
  - Serum potassium and sodium levels
  - Intake, output, and daily weight
  - Measurements of abdominal girth and calf circumference

ANS: C

Urinary intake and output and daily weights are the best reflections of a patient's fluid volume status.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

8. A patient is being discharged to home on a single daily dose of a diuretic. The nurse instructs the patient to take the dose at which time so it will be least disruptive to the patient's daily routine?
- In the morning
  - At noon
  - With supper
  - At bedtime

ANS: A

It is better to take the diuretic medication early in the morning to prevent urination during the night. Taking the diuretic at the other times may cause nighttime urination and disrupt sleep.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

9. A patient is started on a diuretic for antihypertensive therapy. The nurse expects that a drug in which class is likely to be used initially?
- Loop diuretics
  - Osmotic diuretics
  - Thiazide diuretics
  - Potassium-sparing diuretics

ANS: C

The Eighth Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC-8) guidelines reaffirmed the role of thiazide diuretics as among the first-line drugs in the treatment hypertension. The other drug classes are not considered first-line treatments.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient in the neurologic intensive care unit is being treated for cerebral edema. Which class of diuretic is used to reduce intracranial pressure?
- Loop diuretics
  - Osmotic diuretics
  - Thiazide diuretics
  - Vasodilators

ANS: B

Mannitol, an osmotic diuretic, is commonly used to reduce intracranial pressure and cerebral edema resulting from head trauma.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A 79-year-old patient is taking a diuretic for treatment of hypertension. This patient is very independent and wants to continue to live at home. The nurse will know that which teaching point is important for this patient?
- He should take the diuretic with his evening meal.
  - He should skip the diuretic dose if he plans to leave the house.
  - If he feels dizzy while on this medication, he needs to stop taking it and take potassium supplements instead.
  - He needs to take extra precautions when standing up because of possible orthostatic hypotension and resulting injury from falls.

ANS: D

Caution must be exercised in the administration of diuretics to the older adults because they are more sensitive to the therapeutic effects of these drugs and are more sensitive to the adverse effects of diuretics, such as dehydration, electrolyte loss, dizziness, and syncope. Taking the diuretic with the evening meal may disrupt sleep because of nocturia. Doses should never be skipped or stopped without checking with the prescriber.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is monitoring a patient who is taking a potassium-sparing diuretic. Which of the drugs or drug classes may have an interaction with this type of diuretic? (*Select all that apply.*)
- Lithium
  - Vancomycin
  - Potassium supplements
  - NSAIDs
  - Antidiabetic drugs
  - ACE inhibitors

ANS: A, C, D, F

Taking lithium with potassium-sparing diuretics may cause lithium toxicity; taking ACE inhibitors or potassium supplements may lead to hyperkalemia. Taking NSAIDs with potassium-sparing diuretics may cause a decreased diuretic response. There are no interactions with vancomycin or antidiabetic drugs and potassium-sparing diuretics.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. When assessing a patient who is receiving a loop diuretic, the nurse looks for the manifestations of potassium deficiency, which would include what symptoms? (*Select all that apply.*)
- a. Dyspnea
  - b. Constipation
  - c. Tinnitus
  - d. Muscle weakness
  - e. Anorexia
  - f. Lethargy

ANS: D, E, F

Symptoms of hypokalemia include anorexia, nausea, lethargy, muscle weakness, mental confusion, and hypotension. The other symptoms are not associated with hypokalemia.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## COMPLETION

1. A patient is to receive furosemide (Lasix) via a percutaneous endoscopic gastrostomy (PEG) tube. The order reads, "Give furosemide, 80 mg, per PEG tube once daily." The medication is available in a liquid form, 40 mg/5 mL. Identify how many milliliters the nurse will administer for each dose. \_\_\_\_\_

ANS:

10 mL

40 mg:5 mL :: 80 mg:x mg

$(40 \times x) = (5 \times 80); 40x = 400; x = 10 \text{ mL}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The order for a child reads, "Give furosemide (Lasix) 2 mg/kg IV STAT." The child weighs 33 pounds. Identify how many milligrams the child will receive for this dose. \_\_\_\_\_

ANS:

30 mg

First, convert 33 pounds to kilograms:  $33 \text{ pounds} \div 2.2 = 15 \text{ kg}$ .

Next, calculate mg/kg:  $2 \text{ mg/kg} \times 15 \text{ kg} = 30 \text{ mg}$ .

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 29: Fluids and Electrolytes

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. When reviewing the health history of a patient, the nurse will note that a potential contraindication to potassium supplements exists if the patient has which problem?
  - a. Burns
  - b. Diarrhea
  - c. Renal disease
  - d. Cardiac tachydysrhythmias

ANS: C

Potassium supplements are contraindicated in the presence of renal disease; the other conditions listed may be treated with potassium supplements.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. During a blood transfusion, the patient begins to have chills and back pain. What is the nurse's priority action?
  - a. Observe for other symptoms.
  - b. Slow the infusion rate of the blood.
  - c. Discontinue the infusion immediately, and notify the prescriber.
  - d. Tell the patient that these symptoms are a normal reaction to the blood product.

ANS: C

Because of the possibility of a transfusion reaction, the infusion should be discontinued immediately and the prescriber notified. The intravenous line should be kept patent with isotonic normal saline solution infusing at a slow rate, and the health care facility's protocol for transfusion reactions should always be followed. The other options are inappropriate actions.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

3. The nurse is working with a graduate nurse to prepare an intravenous dose of potassium for a patient on a regular medical-surgical unit. Which statement by the graduate nurse reflects a need for further teaching?
  - a. "We will need to monitor this infusion closely."
  - b. "The infusion rate needs to infuse at 10 mEq/hr."
  - c. "The intravenous potassium will be diluted before we give it."
  - d. "The intravenous potassium dose will be given undiluted."

ANS: D

When giving intravenous potassium, the medication must always be given in a diluted form and administered slowly. Intravenous bolus or undiluted forms may cause cardiac arrest. Intravenous rates are not to exceed 10 mEq/hr unless the patient is on a cardiac monitor. Oral forms should be mixed with juice or water or taken according to instructions.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient is in an urgent care center and is receiving treatment for mild hyponatremia after spending several hours doing gardening work in the heat of the day. The nurse expects that which drug therapy will be used to treat this condition?
- Oral supplementation of fluids
  - Intravenous bolus of lactated Ringer's solution
  - Normal saline infusion, administered slowly
  - Oral administration of sodium chloride tablets

ANS: D

Mild hyponatremia is usually treated by oral administration of sodium chloride tablets. Pronounced sodium depletion is treated by intravenous normal saline or lactated Ringer's solution.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. When monitoring a patient for signs of hypokalemia, the nurse looks for what early sign?
- Seizures
  - Cardiac dysrhythmias
  - Diarrhea
  - Muscle weakness

ANS: D

Muscle weakness is an early symptom of hypokalemia, as are hypotension, lethargy, mental confusion, and nausea. Cardiac dysrhythmias are a late symptom of hypokalemia. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. During an infusion of albumin, the nurse monitors the patient closely for the development of which adverse effect?
- Hypernatremia
  - Dehydration
  - Fluid volume overload
  - Transfusion reaction

ANS: C



During the infusion of albumin, the development of fluid volume overload must be monitored by the nurse, especially in those at risk for heart failure. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient is receiving an infusion of fresh frozen plasma. Based on this order, the nurse interprets that this patient has which condition?
- Hypovolemic shock
  - Anemia
  - Coagulation disorder
  - Previous transfusion reaction

ANS: C

Fresh frozen plasma is used as an adjunct to massive blood transfusion in the treatment of patients with underlying coagulation disorders. The other options are not indications for fresh frozen plasma.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is preparing to transfuse a patient with a unit of packed red blood cells (PRBCs). Which intravenous solution is correct for use with the PRBC transfusion?
- 5% dextrose in water (D<sub>5</sub>W)
  - 0.9% sodium chloride (NS)
  - 5% dextrose in 0.45% sodium chloride (D<sub>5</sub>NS)
  - 5% dextrose in lactated Ringer's solution (D<sub>5</sub>LR)

ANS: B

Blood products should be given only with normal saline 0.9% because D<sub>5</sub>W will also cause hemolysis of the blood product.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

9. The nurse is preparing to transfuse a patient with a unit of packed red blood cells (PRBCs). Which patient would be best treated with this transfusion?
- A patient with a coagulation disorder
  - A patient with severe anemia
  - A patient who has lost a massive amount of blood after an accident
  - A patient who has a clotting-factor deficiency

ANS: B

PRBCs are given to increase the oxygen-carrying capacity in patients with anemia, in patients with substantial hemoglobin deficits, and in patients who have lost up to 25% of their total blood volume. Patients with coagulation disorder or clotting-factor deficiency would receive fresh frozen plasma; a patient who has lost a massive amount of blood would receive whole blood.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

10. After a severe auto accident, a patient has been taken to the trauma unit and has an estimated blood loss of more than 30% of his blood volume. The nurse prepares to administer which product?
- Albumin
  - Whole blood
  - Packed red blood cells
  - Fresh frozen plasma

ANS: B

A patient who has lost a massive amount (over 25%) of blood volume would receive whole blood. PRBCs are given to increase the oxygen-carrying capacity in patients with anemia, in patients with substantial hemoglobin deficits, and in patients who have lost up to 25% of their total blood volume. A patient with a coagulation disorder or a clotting-factor deficiency would receive fresh frozen plasma; albumin is used to expand fluid volume.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient who is severely anemic also has acute heart failure with severe edema due to fluid overload. The prescriber wants to raise the patient's hemoglobin and hematocrit levels. The nurse anticipates that the patient will receive which blood product?
- Fresh frozen plasma
  - Albumin
  - Packed red blood cells (PRBCs)
  - Whole blood

ANS: C

PRBCs are given to increase the oxygen-carrying capacity in a patient with anemia, in a patient with substantial hemoglobin deficits, and in a patient who has lost up to 25% of total blood volume. A patient with a coagulation disorder or a clotting-factor deficiency would receive fresh frozen plasma; a patient who has lost a massive amount of blood would receive whole blood.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. The nurse is preparing to give a potassium supplement. Which laboratory test should be checked before the patient receives a dose of potassium?
- Complete blood count
  - Serum potassium level
  - Serum sodium level
  - Liver function studies

ANS: B

Contraindications to potassium replacement products include hyperkalemia from any cause. It is important to know the patient's electrolyte levels before beginning any electrolyte replacement therapy. Giving potassium supplements to a patient whose serum potassium levels are already high may cause worsening of the hyperkalemia if it is present. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. During diuretic therapy, the nurse monitors the fluid and electrolyte status of the patient. Which assessment findings are symptoms of hyponatremia? (*Select all that apply.*)
  - a. Red, flushed skin
  - b. Lethargy
  - c. Decreased urination
  - d. Hypotension
  - e. Stomach cramps
  - f. Elevated temperature

ANS: B, D, E

Hyponatremia is manifested by lethargy, hypotension, stomach cramps, vomiting, diarrhea, and seizures. The other options are not symptoms of hyponatremia.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Physiological Adaptation

## COMPLETION

1. The order reads, "Give 1500 mL of normal saline over 12 hours. The tubing drop factor is 15 gtt/mL." The nurse will set the gravity drip infusion at how many drops per minute (gtt/min). \_\_\_\_\_

ANS:

31 gtts/min

Calculate milliliters per hour:  $1500 \text{ mL} \div 12 \text{ hours} = 125 \text{ mL/hr}$ .

Calculate gtt/min:

$15 \text{ gtt/mL} \times 125 \text{ mL/hr} = 1875 \text{ gtt/hr}$

$1875 \div 60 = 31.25$ ; set at 31 gtt/min.

31.25 is rounded to 31 gtt/min because one cannot count 0.25 drops.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. An intravenous piggyback (IVPB) antibiotic needs to infuse over 90 minutes. The IVPB bag contains 150 mL. Calculate the setting for the infusion pump. \_\_\_\_\_

ANS:

100 mL/hr

The infusion pump delivers at mL/hr. Convert 90 minutes to hours: 1.5 hours.

150 mL:1.5 hours ::  $x$  mL:1 hour.

$(150 \times 1) = (1.5 \times x)$ ;  $150 = 1.5x$ ;  $x = 100$ ; set at 100 mL/hr.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 30: Pituitary Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse notes in a patient's medication history that the patient has been taking desmopressin (DDAVP). Based on this finding, the nurse interprets that the patient has which disorder?
  - a. Diabetes mellitus
  - b. Diabetes insipidus
  - c. Adrenocortical insufficiency
  - d. Carcinoid tumor

ANS: B

Desmopressin is used to prevent or control polydipsia (excessive thirst), polyuria, and dehydration in patients with diabetes insipidus. The symptoms are caused by a deficiency of endogenous antidiuretic hormone. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A 16-year-old boy who is taking somatropin comes into the office because he had an asthma attack during a race at school. Because of this new development, the nurse expects which intervention to occur next?
  - a. He will need to stop participating in school physical education classes.
  - b. The somatropin must be discontinued immediately.
  - c. The somatropin dosage may be adjusted.
  - d. His growth will be documented and monitored for changes.

ANS: C

Somatropin is to be used with caution in acute or chronic illnesses, such as migraine headaches, epilepsy, and asthma. It will not have to be immediately discontinued but will require close monitoring. The patient's growth will be measured and documented throughout therapy with somatropin.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. When a patient is receiving vasopressin (Pitressin), the nurse will monitor for which therapeutic response?
  - a. Improved appetite
  - b. Increased serum albumin levels
  - c. Increased serum potassium levels
  - d. Decreased urinary output

ANS: D

Decreased severe thirst and decreased urinary output are the therapeutic responses expected with vasopressin. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. An 8-year-old child has been diagnosed with true pituitary dwarfism and is being treated with somatropin. In follow-up visits, the nurse will monitor for which expected outcome?
- Increased growth
  - Decreased urinary output
  - Increased muscle strength
  - Increased height when the child reaches puberty

ANS: A

In patients for whom somatropin is indicated, increased growth is expected. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. When reviewing the medication profile of a patient with a new order for desmopressin (DDAVP), the nurse notes that a drug interaction will occur if which drug is taken with desmopressin?
- Aspirin
  - Digoxin
  - Lithium
  - Penicillin

ANS: C

Lithium may cause a decreased therapeutic effect of desmopressin. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient's medication order indicates that he is to receive a dose of cosyntropin (Cortrosyn). The nurse is aware that this drug is used to diagnose which condition?
- Adrenocortical insufficiency
  - Diabetes insipidus
  - Myasthenia gravis
  - Pituitary dwarfism

ANS: A

Cosyntropin is used for the diagnosis of adrenocortical insufficiency. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient who has been on somatropin (Humatrope) has been hospitalized for an acute asthma exacerbation, and is receiving intravenous doses of glucocorticoids. The nurse recognizes that which effect may occur if these drugs are given together?
- Reduction of growth effects
  - Hyperkalemia
  - Increased urine output
  - Diarrhea

ANS: A

Reduced growth effects may occur if somatropin is given with glucocorticoid. However, in this situation, the benefits of the glucocorticoid outweighs the risk. The other options are not correct.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

### MULTIPLE RESPONSE

1. A patient is about to receive a dose of octreotide (Sandostatin). The nurse will assess for which contraindications or cautions? (*Select all that apply.*)
- Carcinoid crisis
  - Diarrhea
  - Type 1 diabetes mellitus
  - Gallbladder disease
  - Chronic renal failure
  - Esophageal varices

ANS: C, D, E

Octreotide is used with caution in patients with diabetes (type 1 or 2), gallbladder impairment, or renal impairment. Carcinoid crisis, which may be associated with severe diarrhea and flushing, is an indication for octreotide; esophageal varices are also an indication.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. Which of these hormones are secreted by the anterior pituitary gland? (*Select all that apply.*)
- Antidiuretic hormone (ADH)
  - Thyroid-stimulating hormone (TSH)
  - Oxytocin
  - Growth hormone (GH)
  - Adrenocorticotrophic hormone (ACTH)

ANS: B, D, E

Thyroid-stimulating hormone, growth hormone, and adrenocorticotrophic hormone are examples of hormones secreted by the anterior pituitary gland. Oxytocin and antidiuretic hormone are produced by the posterior pituitary gland.

DIF: Cognitive Level: Understanding (Comprehension)  
General

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

### COMPLETION

1. A patient is to receive vasopressin (Pitressin) 5 units subQ twice a day. The medication is available in a vial that contains 20 units/mL. Identify how many milliliters the nurse will draw up for this dose. (record answer using two decimal places) \_\_\_\_\_

ANS:

0.25 mL

20 units:1 mL :: 5 units: $x$  mL.

$(20 \times x) = (1 \times 5)$ ;  $20x = 5$ ;  $x = 0.25$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



## **Chapter 31: Thyroid and Antithyroid Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. A patient, newly diagnosed with hypothyroidism, receives a prescription for a thyroid hormone replacement drug. The nurse assesses for which potential contraindication to this drug?
  - a. Infection
  - b. Diabetes mellitus
  - c. Liver disease
  - d. Recent myocardial infarction

ANS: D

Contraindications to thyroid preparations include known drug allergy to a given drug product, recent myocardial infarction, adrenal insufficiency, and hyperthyroidism. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient with hypothyroidism is given a prescription for levothyroxine (Synthroid). When the nurse explains that this is a synthetic form of the thyroid hormone, he states that he prefers to receive more “natural” forms of drugs. What will the nurse explain to him about the advantages of levothyroxine?
  - a. It has a stronger effect than the natural forms.
  - b. Levothyroxine is less expensive than the natural forms.
  - c. The synthetic form has fewer adverse effects on the gastrointestinal tract.
  - d. The half-life of levothyroxine is long enough to permit once-daily dosing.

ANS: D

One advantage of levothyroxine over the natural forms is that it can be administered only once a day because of its long half-life. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The order reads, “Give levothyroxine (Synthroid), 200 mg, PO once every morning.” Which action by the nurse is correct?
  - a. Give the medication as ordered.
  - b. Change the dose to 200 mcg because that is what the prescriber meant.
  - c. Hold the drug until the prescriber returns to see the patient.
  - d. Question the order because the dose is higher than 200 mcg.

ANS: D

Levothyroxine is dosed in micrograms. A common medication error is to write the intended dose in milligrams instead of micrograms. If not caught, this error would result in a thousandfold overdose. Doses higher than 200 mcg need to be questioned in case this error has occurred. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

4. During a teaching session for a patient on antithyroid drugs, the nurse will discuss which dietary instructions?
- Using iodized salt when cooking
  - Avoiding foods containing iodine
  - Restricting fluid intake to 2500 mL/day
  - Increasing intake of sodium- and potassium-containing foods

ANS: B

Patients on antithyroid therapy need to avoid iodine-containing foods. These foods may interfere with the effectiveness of the antithyroid drug. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient who is taking propylthiouracil (PTU) for hyperthyroidism wants to know how this medicine works. Which explanation by the nurse is accurate?
- It promotes the formation of thyroid hormone.
  - It slows down the formation of thyroid hormone.
  - It destroys overactive cells in the thyroid gland.
  - It inactivates already existing thyroid hormone in the bloodstream.

ANS: B

Propylthiouracil impedes the formation of thyroid hormone but has no effect on already existing thyroid hormone. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A 19-year-old student was diagnosed with hypothyroidism and has started thyroid replacement therapy with levothyroxine (Synthroid). After 1 week, she called the clinic to report that she does not feel better. Which response from the nurse is correct?
- "It will probably require surgery for a cure to happen."
  - "The full therapeutic effects may not occur for several weeks."
  - "Is it possible that you did not take your medication as instructed?"
  - "Let's review your diet; it may be causing absorption problems."

ANS: B

Patients need to understand that it may take several weeks to see the full therapeutic effects of thyroid drugs. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

7. A patient, newly diagnosed with hypothyroidism, has received a prescription for thyroid replacement therapy. The nurse will instruct the patient to take this medication at which time of day?
- In the morning
  - With the noon meal
  - With the evening meal
  - At bedtime

ANS: A

If possible, it is best to administer thyroid drugs taken once daily in the morning so as to decrease the likelihood of insomnia that may result from evening dosing.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. When reviewing the laboratory values of a patient who is taking antithyroid drugs, the nurse will monitor for which adverse effect?
- Decreased glucose levels
  - Decreased white blood cell count
  - Increased red blood cell count
  - Increased platelet count

ANS: B

Antithyroid drugs may cause bone marrow suppression, resulting in agranulocytosis, leukopenia, thrombocytopenia, and other problems. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient has been taking levothyroxine (Synthroid) for more than one decade for primary hypothyroidism. Today she calls because she has a cousin who can get her the same medication in a generic form from a pharmaceutical supply company. Which is the nurse's best advice?
- "This would be a great way to save money."
  - "There's no difference in brands of this medication."
  - "This should never be done; once you start with a certain brand, you must stay with it."
  - "It's better not to switch brands unless we check with your doctor."

ANS: D

Switching brands of levothyroxine during treatment can destabilize the course of treatment. Thyroid function test results need to be monitored more carefully when switching products.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient has a diagnosis of primary hypothyroidism. Which statement accurately describes this problem?
- The hypothalamus is not secreting thyrotropin-releasing hormone (TRH); therefore, thyroid-stimulating hormone (TSH) is not released from the pituitary gland.
  - The pituitary gland is dysfunctional and is not secreting TSH.
  - The abnormality is in the thyroid gland itself.
  - The abnormality is caused by an insufficient intake of iodine.

ANS: C

Primary hypothyroidism stems from an abnormality in the thyroid gland itself and occurs when the thyroid gland is not able to perform one of its many functions. Secondary hypothyroidism begins at the level of the pituitary gland and results from reduced secretion of TSH. TSH is needed to trigger the release of the T<sub>3</sub> and T<sub>4</sub> stored in the thyroid gland. Tertiary hypothyroidism is caused by a reduced level of the TRH from the hypothalamus. This reduced level, in turn, reduces TSH and thyroid hormone levels.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

11. A 19-year-old woman has been diagnosed with hypothyroidism and has started thyroid replacement therapy with levothyroxine (Synthroid). After 6 months, she calls the nurse to say that she feels better and wants to stop the medication. Which response by the nurse is correct?
- “You can stop the medication if your symptoms have improved.”
  - “You need to stay on the medication for at least 1 year before a decision about stopping it can be made.”
  - “You need to stay on this medication until you become pregnant.”
  - “Medication therapy for hypothyroidism is usually lifelong, and you should not stop taking the medication.”

ANS: D

These medications must never be abruptly discontinued, and lifelong therapy is usually the norm. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## MULTIPLE RESPONSE

1. Levothyroxine (Synthroid) has been prescribed for a patient with hypothyroidism. The nurse reviews the patient's current medications for potential interactions. Which of these drugs or drug classes interact with levothyroxine? (*Select all that apply.*)
- Phenytoin (Dilantin)
  - Estrogens
  - Beta blockers
  - Warfarin (Coumadin)
  - Penicillins

f. Iron supplements

ANS: A, B, D, F

Drug interactions with thyroid preparations include phenytoin, cholestyramine, antacids, calcium salts, iron products, estrogens, and warfarin (see Table 31-3). The other options are not correct.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. The nurse is giving morning medications. The Medication Administration Record has an order for levothyroxine, 25 mcg PO. The drug-dispensing cabinet contains levothyroxine tablets in milligram strengths instead of micrograms. Calculate the milligram equivalent dose of 25 mcg. \_\_\_\_\_

ANS:

0.025 mg

There are 1000 mcg in 1 mg

1000 mcg:1 mg :: 25 mcg: $x$  mg.

$(1000 \times x) = (1 \times 25)$ ;  $1000x = 25$ ;  $x = 0.025$  mg

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 32: Antidiabetic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is administering insulin lispro (Humalog) and will keep in mind that this insulin will start to have an effect within which time frame?
  - a. 15 minutes
  - b. 1 to 2 hours
  - c. 80 minutes
  - d. 3 to 5 hours

ANS: A

The onset of action for insulin lispro is 15 minutes. The peak plasma concentration is 1 to 2 hours; the elimination half-life is 80 minutes; and the duration of action is 3 to 5 hours.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. When teaching about hypoglycemia, the nurse will make sure that the patient is aware of the early signs of hypoglycemia, including which of these?
  - a. Hypothermia and seizures.
  - b. Nausea and diarrhea.
  - c. Confusion and sweating.
  - d. Fruity, acetone odor to the breath.

ANS: C

Early symptoms of hypoglycemia include the central nervous system manifestations of confusion, irritability, tremor, and sweating. Hypothermia and seizures are later symptoms of hypoglycemia. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

3. The nurse is teaching a group of patients about self-administration of insulin. What content is important to include?
  - a. Patients need to use the injection site that is the most accessible.
  - b. If two different insulins are ordered, they need to be given in separate injections.
  - c. When mixing insulins, the cloudy (such as NPH) insulin is drawn up into the syringe first.
  - d. When mixing insulins, the clear (such as regular) insulin is drawn up into the syringe first.

ANS: D

If mixing insulins in one syringe, the clear (regular) insulin is always drawn up into the syringe first. Patients always need to rotate injection sites. Mixing of insulins may be ordered.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. When monitoring a patient's response to oral antidiabetic drugs, the nurse knows that which laboratory result would indicate a therapeutic response?
- Random blood glucose level 180 mg/dL
  - Blood glucose level of 50 mg/dL after meals
  - Fasting blood glucose level of 92 mg/dL
  - Evening blood glucose level below 80 mg/dL

ANS: C

The American Diabetes Association recommends a fasting blood glucose level of between 70 and 130 mg/dL for diabetic patients. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

5. A 75-year-old woman with type 2 diabetes has recently been placed on glipizide (Glucotrol). She asks the nurse when the best time would be to take this medication. What is the nurse's best response?
- "Take this medication in the morning, 30 minutes before breakfast."
  - "Take this medication in the evening with a snack."
  - "This medication needs to be taken after the midday meal."
  - "It does not matter what time of day you take this medication."

ANS: A

Glipizide is taken in the morning, 30 minutes before breakfast. This allows the timing of the insulin secretion induced by the glipizide to correspond with the elevation in blood glucose level induced by the meal in much the same way as endogenous insulin levels are raised in a person without diabetes.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient who has type 2 diabetes is scheduled for an oral endoscopy and has been NPO (nothing by mouth) since midnight. What is the best action by the nurse regarding the administration of her oral antidiabetic drugs?
- Administer half the original dose.
  - Withhold all medications as ordered.
  - Contact the prescriber for further orders.
  - Give the medication with a sip of water.

ANS: C

When the diabetic patient is NPO, the prescriber needs to be contacted for further orders regarding the administration of the oral antidiabetic drugs. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is reviewing instructions for a patient with type 2 diabetes who also takes insulin injections as part of the therapy. The nurse asks the patient, “What should you do if your fasting blood glucose is 47 mg/dL?” Which response by the patient reflects a correct understanding of insulin therapy?
- “I will call my doctor right away.”
  - “I will give myself the regular insulin.”
  - “I will take an oral form of glucose.”
  - “I will rest until the symptoms pass.”

ANS: C

Hypoglycemia can be reversed if the patient eats glucose tablets or gel, corn syrup, or honey, or drinks fruit juice or a nondiet soft drink or other quick sources of glucose, which must always be kept at hand. The patient should not wait for instructions from the physician, nor delay taking the glucose by resting. The regular insulin would only lower the blood glucose levels more.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is teaching patients about self-injection of insulin. Which statement is true regarding injection sites?
- Avoid the abdomen because absorption there is irregular.
  - Choose a different site at random for each injection.
  - Give the injection in the same area each time.
  - Rotate sites within the same location for about 1 week before rotating to a new location.

ANS: D

Patients taking insulin injections need to be instructed to rotate sites, but to do so within the same location for about 1 week (so that all injections are rotated in one area—for example, the right arm—before rotating to a new location, such as the left arm). Also, each injection needs to be at least 1/2 to 1 inch away from the previous site.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. Which action is most appropriate regarding the nurse’s administration of a rapid-acting insulin to a hospitalized patient?
- Give it within 15 minutes of mealtime.
  - Give it after the meal has been completed.
  - Administer it once daily at the time of the midday meal.
  - Administer it with a snack before bedtime.

ANS: A

Rapid-acting insulins are able to mimic closely the body’s natural rapid insulin output after eating a meal; for this reason, these insulins are usually administered within 15 minutes of the patient’s mealtime. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:



MSC: NCLEX: Safe and Effective Care Environment: Management of Care

10. After starting treatment for type 2 diabetes mellitus 6 months earlier, a patient is in the office for a follow-up examination. The nurse will monitor which laboratory test to evaluate the patient's adherence to the antidiabetic therapy over the past few months?
- Hemoglobin levels
  - Hemoglobin A1C level
  - Fingerstick fasting blood glucose level
  - Serum insulin levels

ANS: B

The hemoglobin A1C level reflects the patient's adherence to the therapy regimen for several months previously, thus evaluating how well the patient has been doing with diet and drug therapy. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Health Promotion and Maintenance

11. A patient in the emergency department was showing signs of hypoglycemia and had a fingerstick glucose level of 34 mg/dL. The patient has just become unconscious. The nurse will anticipate which action to be next?
- Having the patient eat glucose tablets.
  - Having the patient consume fruit juice, a nondiet soft drink, or crackers.
  - Administering intravenous glucose (50% dextrose).
  - Calling the lab to order a fasting blood glucose level.

ANS: C

Intravenous glucose raises blood glucose levels when the patient is unconscious and unable to take oral forms of glucose. Having the lab draw a fasting glucose level is not an appropriate action at this time.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

12. The nurse is preparing to administer insulin intravenously. Which statement about the administration of intravenous insulin is true?
- Insulin is never given intravenously.
  - Only regular insulin can be administered intravenously.
  - Insulin aspart or insulin lispro can be administered intravenously, but there must be a 50% dose reduction.
  - Any form of insulin can be administered intravenously at the same dose as that is ordered for subcutaneous administration.

ANS: B

Regular insulin is the usual insulin product to be dosed via intravenous bolus, intravenous infusion, or even intramuscularly. These routes, especially the intravenous infusion route, are often used in cases of diabetic ketoacidosis, or coma associated with uncontrolled type 1 diabetes.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

13. A patient with a history of chronic obstructive pulmonary disease (COPD) and type 2 diabetes has been treated for pneumonia for the past week. The patient has been receiving intravenous corticosteroids as well as antibiotics as part of his therapy. At this time, the pneumonia has resolved, but when monitoring the blood glucose levels, the nurse notices that the level is still elevated. What is the best explanation for this elevation?
- The antibiotics may cause an increase in glucose levels.
  - The corticosteroids may cause an increase in glucose levels.
  - His type 2 diabetes has converted to type 1.
  - The hypoxia caused by the COPD causes an increased need for insulin.

ANS: B

Corticosteroids can antagonize the hypoglycemic effects of insulin, resulting in elevated blood glucose levels. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

14. The nurse knows to administer acarbose (Precose), an alpha-glucosidase inhibitor, at which time?
- 30 minutes before breakfast
  - With the first bite of each main meal
  - 30 minutes after breakfast
  - Once daily at bedtime

ANS: B

When an alpha-glucosidase inhibitor is taken with the first bite of a meal, excessive postprandial blood glucose elevation (a glucose spike) can be reduced or prevented.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

15. A patient has been diagnosed with metabolic syndrome and is started on the biguanide metformin (Glucophage). The nurse knows that the purpose of the metformin, in this situation, is which of these?
- To increase the pancreatic secretion of insulin
  - To decrease insulin resistance
  - To increase blood glucose levels
  - To decrease the pancreatic secretion of insulin

ANS: B

Metformin decreases glucose production by the liver; decreases intestinal absorption of glucose; and improves insulin receptor sensitivity in the liver, skeletal muscle, and adipose tissue, resulting in decreased insulin resistance. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

16. When administering morning medications for a newly admitted patient, the nurse notes that the patient has an allergy to sulfa drugs. There is an order for the sulfonylurea glipizide (Glucotrol). Which action by the nurse is correct?
- Give the drug as ordered 30 minutes before breakfast.
  - Hold the drug, and check the order with the prescriber.
  - Give a reduced dose of the drug with breakfast.
  - Give the drug, and monitor for adverse effects.

ANS: B

There is a potential for cross-allergy in patients who are allergic to sulfonamide antibiotics. Although such an allergy is listed as a contraindication by the manufacturer, most clinicians do prescribe sulfonylureas for such patients. The order needs to be clarified.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

17. The nurse is reviewing a patient's medication list and notes that sitagliptin (Januvia) is ordered. The nurse will question an additional order for which drug or drug class?
- Glitazone
  - Insulin
  - Metformin (Glucophage)
  - Sulfonylurea

ANS: B

Sitagliptin is indicated for management of type 2 diabetes either as monotherapy or in combination with metformin, a sulfonylurea, or a glitazone, but not with insulin.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

18. The nurse is teaching a review class to nurses about diabetes mellitus. Which statement by the nurse is correct?
- "Patients with type 2 diabetes will never need insulin."
  - "Oral antidiabetic drugs are safe for use during pregnancy."
  - "Pediatric patients cannot take insulin."
  - "Insulin therapy is possible during pregnancy if managed carefully."

ANS: D

Oral medications are generally not recommended for pregnant patients because of a lack of firm safety data. For this reason, insulin therapy is the only currently recommended drug therapy for pregnant women with diabetes. Insulin is given to pediatric patients, with extreme care. Patients with type 2 diabetes may require insulin in certain situations or as their disease progresses.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

19. The nurse is teaching a group of patients about management of diabetes. Which statement about basal dosing is correct?
- “Basal dosing delivers a constant dose of insulin.”
  - “With basal dosing, you can eat what you want and then give yourself a dose of insulin.”
  - “Glargine insulin is given as a bolus with meals.”
  - “Basal-bolus dosing is the traditional method of managing blood glucose levels.”

ANS: A

Basal-bolus therapy is the attempt to mimic a healthy pancreas by delivering basal insulin constantly as a basal, and then as needed as a bolus. Glargine insulin is used as a basal dose, not as a bolus with meals. Basal-bolus therapy is a newer therapy; historically, sliding-scale coverage was implemented.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

20. When teaching a patient who is starting metformin (Glucophage), which instruction by the nurse is correct?
- “Take metformin if your blood glucose level is above 150 mg/dL.”
  - “Take this 60 minutes after breakfast.”
  - “Take the medication on an empty stomach 1 hour before meals.”
  - “Take the medication with food to reduce gastrointestinal (GI) effects.”

ANS: D

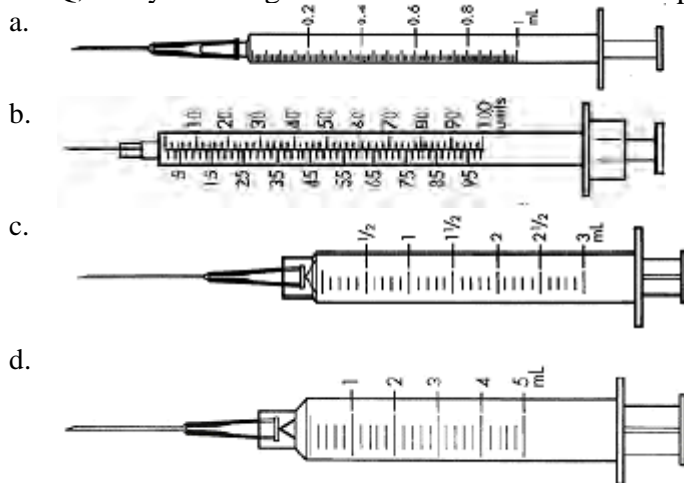
The GI adverse effects of metformin can be reduced by administering it with meals. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

21. The insulin order reads, “Give 10 units of NPH insulin and 5 units of regular insulin, subQ, every morning before breakfast.” Choose the proper syringe for this injection.



ANS: B

The proper syringe for insulin injection is the insulin syringe, which is marked in units. The other syringes listed are not correct for use with insulin because they are not marked in units.

DIF: Cognitive Level: Analyzing (Analysis)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

### MULTIPLE RESPONSE

1. A patient is taking a sulfonylurea medication for new-onset type 2 diabetes mellitus. When reviewing potential adverse effects during patient teaching, the nurse will include information about which of these effects? (*Select all that apply.*)
  - a. Hypoglycemia
  - b. Nausea
  - c. Diarrhea
  - d. Weight gain
  - e. Peripheral edema

ANS: A, B, D

The most common adverse effect of the sulfonylureas is hypoglycemia, the degree to which depends on the dose, eating habits, and presence of hepatic or renal disease. Another predictable adverse effect is weight gain because of the stimulation of insulin secretion. Other adverse effects include skin rash, nausea, epigastric fullness, and heartburn.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient will be taking U-500 insulin. The nurse is reviewing the use of this drug. Which of these statements are true? (*Select all that apply.*)
  - a. U-500 insulin is 5 times stronger than U-100 insulin.
  - b. U-500 insulin syringes must be used when giving U-500 insulin.
  - c. U-500 syringes can deliver 500 units of insulin.
  - d. Each line on a U-500 syringe measures 5 units of U-500 insulin.
  - e. U-500 insulin delivers a smaller dose of insulin in a single injection.

ANS: A, B, D

U-500 insulin is 5 times stronger than U-100 insulin, and must be given with a U-500 syringe. Each line on a U-500 syringe measures 5 units of U-500 insulin. U-500 syringes can deliver 5 to 250 units of insulin; this insulin is more concentrated than regular strength insulin and can deliver a larger dose of insulin in a single injection.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 33: Adrenal Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is administering an adrenal drug to a patient. Which action by the nurse is appropriate for this patient?
  - a. Administering oral adrenal drugs on an empty stomach to maximize absorption
  - b. Rinsing the oral cavity after using corticosteroid inhalers
  - c. Administering the corticosteroids before bedtime to minimize adrenal suppression
  - d. Discontinuing the medication immediately if weight gain of 5 pounds or more in 1 week occurs

ANS: B

After the patient has used the corticosteroid inhalers, cleaning the oral cavity helps to prevent possible oral fungal infections from developing. Adrenal drugs need be taken with meals to minimize gastrointestinal upset and in the mornings to minimize adrenal suppression, and they need to be discontinued by weaning, not abruptly.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. A patient will be starting therapy with a corticosteroid. The nurse reviews the prescriber's orders and notes that an interaction may occur if the corticosteroid is taken with which of these drug classes?
  - a. Nonsteroidal anti-inflammatory drugs
  - b. Antibiotics
  - c. Opioid analgesics
  - d. Antidepressants

ANS: A

The use of corticosteroids with aspirin, other NSAIDs, and other ulcerogenic drugs produces additive gastrointestinal effects and an increased chance for the development of gastric ulcers. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

3. A patient is concerned about the body changes that have resulted from long-term prednisone therapy for the treatment of asthma. Which expected effect of this drug therapy would cause a change in the patient's appearance?
  - a. Weight loss
  - b. Weight gain
  - c. Pale skin color
  - d. Hair loss

ANS: B

Facial erythema, weight gain, hirsutism, and “moon face” (characteristic of Cushing’s syndrome) are possible body changes that may occur with long-term prednisone therapy.

DIF: Cognitive Level: Analyzing (Analysis)  
Planning  
MSC: NCLEX: Psychosocial Integrity

TOP: Nursing Process:

4. A patient is taking fludrocortisone (Florinef) for Addison’s disease, and his wife is concerned about all of the problems that may occur with this therapy. When teaching them about therapy with this drug, the nurse will include which information?
- It may cause severe postural hypotension.
  - It needs to be taken with food or milk to minimize gastrointestinal upset.
  - The medication needs to be stopped immediately if nausea or vomiting occurs.
  - Weight gain of 5 pounds or more in 1 week is an expected adverse effect.

ANS: B

Patients receiving fludrocortisone need to take it with food or milk to minimize gastrointestinal upset; weight gain of 5 pounds or more in 1 week needs to be reported to the physician; abrupt withdrawal is not recommended because it may precipitate an adrenal crisis. Adverse effects are related to the fluid retention and may include heart failure and hypertension.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. When monitoring a patient who is taking a systemically administered glucocorticoid, the nurse will monitor for signs of which condition?
- Dehydration
  - Hypokalemia
  - Hyponatremia
  - Hypoglycemia

ANS: B

Systemic glucocorticoid drugs may cause potassium depletion, hyperglycemia, and hypernatremia. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A glucocorticoid is prescribed for a patient. The nurse checks the patient’s medical history knowing that glucocorticoid therapy is contraindicated in which disorder?
- Cerebral edema
  - Peptic ulcer disease
  - Tuberculous meningitis
  - Chronic obstructive pulmonary disease

ANS: B

Contraindications to the administration of glucocorticoids include drug allergy and may include cataracts, glaucoma, peptic ulcer disease, mental health problems, and diabetes mellitus. The other options are indications for glucocorticoids.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient who has been on long-term corticosteroid therapy has had surgery to correct an abdominal hernia. The nurse keeps in mind that which potential effect of this medication may have the most impact on the patient's recovery?
- Hypotension
  - Delayed wound healing
  - Muscle weakness
  - Osteoporosis

ANS: B

Muscle weakness and osteoporosis may also result from long-term therapy, but delayed wound healing would have the most impact on the patient's recovery from abdominal surgery at this time. Hypertension, not hypotension, may result from long-term corticosteroid therapy.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## MULTIPLE RESPONSE

1. The nurse is reviewing therapy with glucocorticoid drugs. Which conditions are indications for glucocorticoid drugs? (*Select all that apply.*)
- Glaucoma
  - Cerebral edema
  - Chronic obstructive pulmonary disease
  - Organ transplantation
  - Varicella
  - Septicemia

ANS: B, C, D

Cerebral edema, chronic obstructive pulmonary disease, and organ transplantation are indications for glucocorticoid therapy. Glaucoma, varicella, and septicemia are all contraindications to glucocorticoid therapy.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse expects that a patient is experiencing undersecretion of adrenocortical hormones when which conditions are found upon assessment? (*Select all that apply.*)
- Dehydration
  - Weight loss
  - Steroid psychosis
  - Increased potassium levels
  - Increased blood glucose levels
  - Decreased serum sodium levels



ANS: A, B, D, F

The undersecretion (hyposecretion) of adrenocortical hormones causes a condition known as Addison's disease, which is associated with decreased blood sodium and glucose levels, increased potassium levels, dehydration, and weight loss. Steroid psychosis is an effect of glucocorticoid excess.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## COMPLETION

1. A patient has been admitted for an exacerbation of chronic obstructive pulmonary disease and will be receiving methylprednisolone (Solu-Medrol) 30 mg intravenously every 6 hours. The medication is available in 40 mg/mL vials. Identify how many milliliters will the nurse draw up for this dose. \_\_\_\_\_

ANS:

0.75 mL

40 mg:1 mL :: 30 mg: $x$  mL.

$(40 \text{ mg} \times x) = (1 \times 30)$ ;  $40x = 30$ ;  $x = 0.75$ , therefore  $x = 0.75$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 34: Women's Health Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. The nurse is providing teaching for a patient who is to receive progestin therapy. Which statement is correct to include in the teaching session?
  - a. "If you miss a dose, double-up on the next dose."
  - b. "There's no need to be concerned about breast lumps or bumps that occur."
  - c. "Be sure to report any weight gain of 5 pounds or more per week."
  - d. "Take the medication on an empty stomach to enhance absorption."

ANS: C

Patients taking progestins should report weight gain of 5 pounds or more per week to a physician. The other statements are not true for these drugs.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. The nurse recognizes that use of estrogen drugs is contraindicated in which patient?
  - a. A patient who has atrophic vaginitis
  - b. A patient who has inoperable prostate cancer
  - c. A woman who has just given birth and wants to prevent postpartum lactation
  - d. A woman with a history of thrombophlebitis

ANS: D

Estrogenic drugs are contraindicated in people who have active thromboembolic disorders and in those with histories of thromboembolic disease. Atrophic vaginitis and inoperable prostate cancer are potential indications for estrogen therapy. Estrogen is not used to prevent lactation.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient is being treated for secondary amenorrhea. The nurse expects which drug to be used to treat this problem?
  - a. Methylergonovine (Methergine)
  - b. Estradiol transdermal (Estraderm)
  - c. Raloxifene (Evista)
  - d. Medroxyprogesterone (Provera)

ANS: D

Medroxyprogesterone, a progestin, is one of the drugs most commonly used for secondary amenorrhea. Secondary amenorrhea is not an indication for the other drugs listed.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. The nurse is teaching a patient about the adverse effects of fertility drugs such as clomiphene (Clomid). Which is a potential adverse effect of this drug?
- Headache
  - Drowsiness
  - Dysmenorrhea
  - Hypertension

ANS: A

Headache is one of the possible adverse effects of the fertility drugs. They may also cause vomiting, restlessness, and urticaria. Drowsiness, dysmenorrhea, and hypertension are not potential adverse effects. See Table 34-5 for other adverse effects.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient is receiving oxytocin (Pitocin) to induce labor. During administration of this medication, the nurse will also implement which action?
- Giving magnesium sulfate along with the oxytocin
  - Administering the medication in an intravenous (IV) bolus
  - Administering the medication with an IV infusion pump
  - Monitoring fetal heart rate and maternal vital signs every 2 hours

ANS: C

Oxytocin is infused via an infusion pump, not via an IV bolus. Magnesium sulfate is not administered with oxytocin. Fetal heart rate and maternal vital signs should be monitored continuously.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is reviewing the use of uterine tocolytics, such as indomethacin (Indocin). Which statement best describes the indication for these drugs?
- Prevention of preterm labor in the 15th week of pregnancy
  - Prevention of preterm labor in the 22nd week of pregnancy
  - Stimulation of contractions in prolonged labor
  - Stimulation of ovulation as part of infertility treatments

ANS: B

Tocolytics relax uterine smooth muscles and stop the uterus from contracting and are used along with nonpharmacologic measures to prevent preterm labor between 20 and 37 weeks of pregnancy.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A 51-year-old woman will be taking selective estrogen receptor modulators (SERMs) as part of treatment for postmenopausal osteoporosis. The nurse reviews potential contraindications, including which condition?
- Hypocalcemia

- b. Breast cancer
- c. Stress fractures
- d. Venous thromboembolism

ANS: D

SERMs such as raloxifene are contraindicated in women with a venous thromboembolic disorder, including deep vein thrombosis, pulmonary embolism, or a history of such disorders. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. During a follow-up visit, a patient who has been on estrogen therapy admits that she has continued to smoke cigarettes. The nurse will remind the patient that smoking while on estrogen may lead to increased:
- a. incidence of nausea.
  - b. risk for thrombosis.
  - c. levels of triglycerides.
  - d. tendency to bleed during menstruation.

ANS: B

Smoking should be avoided during estrogen therapy because it adds to the risk for thrombosis formation. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

9. When considering the various types of contraceptive drugs, the nurse is aware that which type most closely duplicates the normal hormonal levels of the female menstrual cycle?
- a. Monophasic
  - b. Biphasic
  - c. Triphasic
  - d. Short acting

ANS: C

The triphasic drugs most closely duplicate the normal hormonal levels of the female menstrual cycle. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

10. A woman visits a health center requesting oral contraceptives. Which laboratory test is most important for the nurse to assess before the patient begins oral contraceptive therapy?
- a. Complete blood count
  - b. Serum potassium level
  - c. Vaginal cultures
  - d. Pregnancy test

ANS: D

Pregnancy should be ruled out before beginning oral contraceptive therapy because the medications can be harmful to the fetus; they are classified as pregnancy category X.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

11. The nurse is providing patient teaching about the oral bisphosphonate alendronate (Fosamax). Which statement by the patient indicates a good understanding of when this drug should be taken?
- "I will take it in the evening just before bedtime."
  - "I will take it in the morning with an 8-ounce glass of water."
  - "I will take it with the first bite of the morning meal."
  - "I will take it between meals on an empty stomach."

ANS: B

Bisphosphonates must be taken in the morning, with 6 to 8 ounces of plain water, to prevent esophageal erosion. In addition, the patient must sit upright for 30 minutes after taking them.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

12. A woman is preparing for a 10 hour trans-Atlantic flight. She has been taking the SERM raloxifene (Evista) for 6 months. The nurse will provide which instructions to this patient?
- She needs to stop taking the drug at least 72 hours before the trip.
  - She must remember to take this drug with a full glass of water each morning.
  - She will not take the drug while traveling on the plane.
  - No change in how the drug is taken will be needed.

ANS: A

A patient taking a SERM must be informed to discontinue the drug 72 hours before and during prolonged immobility so as to prevent the development of a thrombosis.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

13. The nurse recognizes that the risk of osteoporosis is higher in an individual with which risk factor?
- White or Asian race
  - African-American race
  - History of participation in active sports
  - Obesity

ANS: A

Risk factors for postmenopausal osteoporosis include white or Asian descent, slender body build, early estrogen deficiency, smoking, alcohol consumption, low-calcium diet, sedentary lifestyle, and family history of osteoporosis.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

14. A patient who is taking the bisphosphonate alendronate (Fosamax) has been instructed to lie flat in bed for 2 days after having ophthalmic surgery. Which intervention is appropriate at this time?
- She will continue to take the alendronate with water.
  - She cannot take the alendronate until she can sit up for 30 minutes.
  - She can take the medication with breakfast.
  - She will stop taking the medication 72 hours before her surgery.

ANS: B

The nurse must emphasize that the patient should remain upright in either a standing or sitting position for approximately 30 minutes after taking a bisphosphonate so as to help prevent esophageal erosion or irritation. Because this patient will be required to lie flat in bed for 2 days after the surgery, the prescriber will need to be notified that the patient cannot take the medication during this time.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

15. The nurse is preparing to administer the contraceptive form of medroxyprogesterone (Depo-Provera). What route is appropriate?
- Subcutaneous
  - Intramuscular
  - Vaginal
  - Transdermal

ANS: B

Depo-Provera is a progestin-only injectable contraceptive that is given by the intramuscular route. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

16. A patient wants to try an oral soy product to relieve perimenopausal symptoms. The nurse will assess the patient's medication history for which potential drug interaction?
- Thyroid replacement therapy
  - Oral anticoagulant therapy
  - Nonsteroidal anti-inflammatory drugs
  - Beta blockers

ANS: A

Orally administered soy may interfere with thyroid hormone absorption, so concurrent use must be avoided. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

17. The nurse is administering oxytocin (Pitocin). Which situation is an indication for the use of oxytocin?
- Decreased fetal heart rate and movements
  - Stimulation of contractions during labor
  - Cervical ripening near term in pregnant patients
  - To reverse premature onset of labor

ANS: B

Oxytocin is used to induce labor at or near full-term gestation and to enhance labor when uterine contractions are weak and ineffective.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

18. An older adult female patient is receiving the progestin drug megestrol (Megace). Which is the most likely reason megestrol is ordered for this patient?
- Migraine headaches
  - Osteoporosis
  - Appetite stimulant
  - Reduction of hot flashes

ANS: C

Megestrol can cause appetite stimulation and weight gain, and therefore is used in the management of anorexia, cachexia, or unexplained substantial weight loss in patients with acquired immunodeficiency syndrome (AIDS) and in patients with cancer. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is providing patient education for a patient taking an oral contraceptive. Which drugs may cause interactions with oral contraceptives? (*Select all that apply.*)
- Cephalexin (Keflex)
  - Guaifenesin (Robitussin)
  - Warfarin (Coumadin)
  - Ibuprofen (Motrin)
  - Theophylline (Uniphyll)

ANS: A, C, E

Patients must be educated about the need to use alternative birth control methods for at least 1 month during and after taking any of these drugs: antibiotics (especially penicillins and cephalosporins); barbiturates; isoniazid; and rifampin. The effectiveness of other drugs, such as anticonvulsants, beta blockers, hypnotics, antidiabetic drugs, warfarin, theophylline, tricyclic antidepressants, and vitamins, may be reduced when they are taken with oral contraceptives.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

## COMPLETION

1. A patient is to receive medroxyprogesterone (Depo-Provera) 700 mg weekly, intramuscularly, as part of palliative therapy for endometrial cancer. The medication is available in vials of 400 mg/mL. Identify how many milliliters will the nurse draw up and administer with each injection. (record answer using one decimal place) \_\_\_\_\_

ANS:

1.8 mL

400 mg:1 mL :: 700 mg: $x$  mL.

$(400 \times x) = (1 \times 700)$ ;  $400x = 700$ ;  $x = 1.75$ , rounded to 1.8 mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



## Chapter 35: Men's Health Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient is to receive testosterone therapy via a transdermal patch. He asks the nurse, "Why am I getting a patch? Can't I just take a pill?" Which response by the nurse is correct?
  - a. "The patch reduces the incidence of side effects."
  - b. "If you don't take the patch, you will have to have injections instead."
  - c. "The patch allows for better absorption of the medication."
  - d. "You will only have to change the patch weekly."

ANS: C

The transdermal form allows for better absorption of testosterone because of its high first-pass effect. Oral forms are poorly absorbed, and the transdermal form is preferable to an injection. The patch is changed daily.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. When a male patient is receiving androgen therapy, the nurse will monitor for signs of excessive androgens such as:
  - a. fluid retention.
  - b. dehydration.
  - c. restlessness.
  - d. visual changes.

ANS: A

Fluid retention is an undesirable effect of androgens. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient is receiving finasteride (Proscar) for treatment of benign prostatic hyperplasia. The nurse will tell him that a possible effect of this medication is:
  - a. alopecia.
  - b. increased hair growth.
  - c. urinary retention.
  - d. increased prostate size.

ANS: B

Finasteride is given to reduce prostate size in men with benign prostatic hyperplasia. It has been noted that men taking this medication experience increased hair growth. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. The nurse notes in a female patient's history that she has an order for the androgen testosterone (Android). Based on this finding, the nurse interprets that the patient has which disorder?
- Fibrocystic breast disease
  - Hereditary angioedema
  - Hypertension
  - Inoperable breast cancer

ANS: D

Testosterone can be used in cases of inoperable breast cancer in women. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A 21-year-old male athlete admits to using androgenic steroids. The nurse tells him that which of these is a possible adverse effect of these drugs?
- Liver damage
  - Renal failure
  - Heart failure
  - Stevens-Johnson syndrome

ANS: A

Peliosis of the liver, the formation of blood-filled cavities, is a potential effect of androgenic anabolic steroid therapy and may be life threatening. Other serious hepatic effects are hepatic neoplasms (liver cancer), cholestatic hepatitis, jaundice, and abnormal liver function. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. During the administration of finasteride (Proscar), the nurse must remember which important precaution?
- It must be taken on an empty stomach.
  - It must not be handled by pregnant women.
  - It is given by deep intramuscular injection to avoid tissue irritation.
  - The patient needs to be warned that alopecia is a common adverse effect.

ANS: B

Finasteride must not be handled by pregnant women because of its teratogenic effects. It is taken orally and without regard to meals. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A 73-year-old male patient is in the clinic for a yearly physical and is asking for a prescription for sildenafil (Viagra). He has listed on his health history that he is taking a nitrate for angina. The nurse is aware that which problem may occur if sildenafil is taken with a nitrate?
- Significant increase in pulse rate
  - Significant decrease in blood pressure
  - Increased risk of bleeding
  - Reduced effectiveness of the sildenafil

ANS: B

In patients with pre-existing cardiovascular disease, especially those on nitrates, erectile dysfunction drugs such as sildenafil lower blood pressure substantially, potentially leading to more serious adverse events. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. The nurse is reviewing the medication list of a patient who will be starting androgen therapy. Which drug classes, if taken with androgens, may have an interaction with them?
- Oral anticoagulants
  - Nitrates
  - Beta blockers
  - Proton pump inhibitors

ANS: A

Androgens, when used with oral anticoagulants, can significantly increase or decrease anticoagulant activity. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A 63-year-old male patient is scheduled for a physical examination, and he tells the nurse that he wants to start taking a vitamin formula that includes saw palmetto for prostate health. Which is the nurse's best response?
- "I've heard many good things about saw palmetto."
  - "It's not a good idea to start herbal therapy at your age."
  - "There are very few adverse effects with saw palmetto therapy."
  - "The doctor will need to draw some blood and do a digital rectal exam first."

ANS: D

A prostatic-specific antigen test and digital rectal examination needs to be performed before initiation of treatment with saw palmetto for benign prostatic hyperplasia. Adverse effects may include gastrointestinal upset, headache, back pain, and dysuria.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse notes in a patient's medication history that the patient is taking the synthetic androgen danazol (Danocrine). Indications for danazol include which conditions? (*Select all that apply.*)
  - a. Endometriosis
  - b. Decreased sexual libido
  - c. Postpartum breast engorgement
  - d. Fibrocystic breast disease in women
  - e. Hereditary angioedema
  - f. Metastatic breast cancer

ANS: A, D, E

Danazol is used to treat hereditary angioedema and to treat women who have endometriosis or fibrocystic breast disease. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is instructing a male patient about application of transdermal testosterone gel (AndroGel). Which body location is preferred for this medication? (*Select all that apply.*)
  - a. Shoulders
  - b. Thigh
  - c. Scrotum
  - d. Abdomen
  - e. Upper arms

ANS: A, D, E

AndroGel is applied to the skin of the shoulders, arms or abdomen.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient will be receiving testosterone cypionate (Depo-Testosterone) 400 mg intramuscularly every 4 weeks. The medication is available in a 200-mg/mL strength. Identify how many milliliters will the nurse draw up for each injection. \_\_\_\_\_

ANS:

2 mL

200 mg:1 mL :: 400 mg:x mL.

$(200 \times x) = (1 \times 400)$ ;  $200x = 400$ ;  $x = 2$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 36: Antihistamines, Decongestants, Antitussives, and Expectorants**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. When giving dextromethorphan, the nurse understands that this drug suppresses the cough reflex by which mechanism of action?
  - a. Causing depression of the central nervous system
  - b. Anesthetizing the stretch receptors
  - c. Having direct action on the cough center
  - d. Decreasing the viscosity of the bronchial secretions

ANS: C

Dextromethorphan suppresses the cough reflex through a direct action on the cough center. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. During a routine checkup, a patient states that she is unable to take the prescribed antihistamine because of one of its most common adverse effects. The nurse suspects that which adverse effect has been bothering this patient?
  - a. Constipation
  - b. Abdominal cramps
  - c. Drowsiness
  - d. Decreased libido

ANS: C

Drowsiness is usually the main side effect that bothers people who take antihistamines.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A gardener needs a decongestant because of seasonal allergy problems and asks the nurse whether he should take an oral form or a nasal spray. Which of these is a benefit of orally administered decongestants?
  - a. Immediate onset
  - b. A more potent effect
  - c. Lack of rebound congestion
  - d. Shorter duration

ANS: C

Drugs administered by the oral route produce prolonged decongestant effects, but the onset of action is more delayed and the effect less potent than those of decongestants applied topically. However, the clinical problem of rebound congestion associated with topically administered drugs is almost nonexistent with oral dosage forms.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient is taking guaifenesin (Humibid) as part of treatment for a sinus infection. Which instruction will the nurse include during patient teaching?
- Increase fluid intake to help loosen and liquefy secretions.
  - Report clear-colored sputum to the prescriber.
  - Avoid driving a car or operating heavy machinery because of the sedating effects.
  - Report symptoms that last longer than 2 days.

ANS: A

Increasing fluid intake helps to loosen and liquefy secretions. The patient must be fully aware that any fever, chest tightness, change in sputum from clear to colored, difficult or noisy breathing, activity intolerance, or weakness needs to be reported. The patient must also report to the prescriber a fever of higher than 100.4° F (38° C) or symptoms that last longer than 3 to 4 days. Decongestants do not cause sedation, and therefore the patient does not need to avoid driving a car or operating heavy machinery.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

5. The nurse will instruct patients about a possible systemic effect that may occur if excessive amounts of topically applied adrenergic nasal decongestants are used. Which systemic effect may occur?
- Heartburn
  - Bradycardia
  - Drowsiness
  - Palpitations

ANS: D

Although a topically applied adrenergic nasal decongestant can be absorbed into the bloodstream, the amount absorbed is usually too small to cause systemic effects at normal dosages. Excessive dosages of these medications, however, are more likely to cause systemic effects elsewhere in the body. These may include cardiovascular effects, such as hypertension and palpitations, and central nervous system effects, such as headache, nervousness, and dizziness. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient with a tracheostomy has difficulty removing excessive, thick mucus from the respiratory tract. The nurse expects that which drug will be ordered to aid in the removal of mucus?
- Guaifenesin (Mucinex)
  - Benzonatate (Tessalon Perles)
  - Diphenhydramine (Benadryl)
  - Dextromethorphan (Robitussin DM)

ANS: A

Expectorants such as guaifenesin work to loosen and thin sputum and the bronchial secretions, thereby indirectly diminishing the tendency to cough. The other drugs listed do not have this effect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient has been advised to add a nasal spray (an adrenergic decongestant) to treat a cold. The nurse will include which instruction?
- “You won’t see effects for at least 1 week.”
  - “Limit use of this spray to 3 to 5 days.”
  - “Continue the spray until nasal stuffiness has resolved.”
  - “Avoid use of this spray if a fever develops.”

ANS: B

Frequent, long-term, or excessive use of adrenergic nasal decongestants may lead to rebound congestion if used beyond the recommended time. The other instructions are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient asks the nurse about the uses of echinacea. Which use will the nurse include in the response?
- Memory enhancement
  - Boosting the immune system
  - Improving mood
  - Promoting relaxation

ANS: B

Common uses of echinacea include stimulation of the immune system, antisepsis, treatment of viral infections and influenza-like respiratory tract infections, and promotion of the healing of wounds and chronic ulcerations. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. When teaching a patient who will be receiving antihistamines, the nurse will include which instructions? (*Select all that apply.*)
- “Antihistamines are generally safe to take with over-the-counter medications.”
  - “Take the medication on an empty stomach to maximize absorption of the drug.”
  - “Take the medication with food to minimize gastrointestinal distress.”
  - “Drink extra fluids if possible.”
  - “Antihistamines may cause restlessness and disturbed sleep.”
  - “Avoid activities that require alertness until you know how adverse effects are tolerated.”

ANS: C, D, F

Antihistamines should be taken with food, even though this slightly reduces the absorption of the drug, so as to minimize the gastrointestinal upset that can occur. Over-the-counter medications must not be taken with an antihistamine unless approved by the physician because of the serious drug interactions that may occur. Drinking extra fluids will help to ease the removal of secretions, and activities that require alertness, such as driving, must not be engaged in until the patient knows how he or she responds to the sedating effects of antihistamines.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient tells the nurse that she wants to start taking the herbal product goldenseal to improve her health. The nurse will assess for which potential cautions or contraindications to goldenseal? (*Select all that apply.*)
  - a. Taking a proton-pump inhibitor
  - b. Nasal congestion
  - c. Hypothyroidism
  - d. Taking an antihypertensive drug
  - e. Sinus infections
  - f. Pregnancy

ANS: A, D, F

Goldenseal is contraindicated in patients with acute or chronic gastrointestinal disorders and during pregnancy (because it has uterine stimulant properties). It should be used with caution by those with cardiovascular disorders. Potential drug interactions may occur with gastric acid suppressors such as antacids, histamine H<sub>2</sub> blockers (e.g., ranitidine), and proton-pump inhibitors (e.g., omeprazole), theoretically because of their reduced effectiveness resulting from the acid-promoting effect of the herb, and with antihypertensive drugs (because of the vasoconstrictive activity of the herb). Goldenseal is potentially useful for sinus infections and chronic nasal allergies.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## COMPLETION

1. A child will be receiving diphenhydramine (Benadryl), 5 mg/kg/day, in divided doses, every 6 hours. The child weighs 80 pounds. Identify how many milligrams of medication will the child receive with each dose. (record answer using one decimal place) \_\_\_\_\_

ANS:

45.5 mg

$80 \text{ pounds} \div 2.2 = 36.36$ , which rounds to 36.4 kg.

$5 \text{ mg/kg/day} \times 36.4 \text{ kg} = 182 \text{ mg/day}$ .

With doses given every 6 hours, there will be 4 total doses in a 24-hour period ( $24 \div 6 = 4$ ).



To calculate milligrams per dose:  $182 \text{ mg/day} \div 4 \text{ doses/day} = 45.5 \text{ mg/dose}$ .

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient will be receiving diphenhydramine (Benadryl) via a PEG tube, 25 mg, every 8 hours for an allergic rash. The medication is available as a 12.5 mg/5 mL syrup. Identify how many milliliters will the nurse administer with each dose. \_\_\_\_\_

ANS:

10 mL

$12.5 \text{ mg}:5 \text{ mL} :: 25 \text{ mg}:x \text{ mL}$ .

$(12.5 \times x) = (5 \times 25)$ ;  $15.5x = 125$ ;  $x = 10 \text{ mL}$ .

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 37: Respiratory Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient is taking intravenous aminophylline for a severe exacerbation of chronic obstructive pulmonary disease. The nurse will assess for which therapeutic response?
  - a. Increased sputum production
  - b. Increased heart rate
  - c. Increased respiratory rate
  - d. Increased ease of breathing

ANS: D

The therapeutic effects of bronchodilating drugs such as xanthine derivatives include increased ease of breathing. The other responses are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient is taking a xanthine derivative as part of treatment for chronic obstructive pulmonary disease. The nurse will monitor for which adverse effects associated with the use of xanthine derivatives?
  - a. Diarrhea
  - b. Palpitations
  - c. Bradycardia
  - d. Drowsiness

ANS: B

The common adverse effects of the xanthine derivatives include nausea, vomiting, and anorexia. In addition, gastroesophageal reflux has been observed to occur during sleep in patients taking these drugs. Cardiac adverse effects include sinus tachycardia, extrasystole, palpitations, and ventricular dysrhythmias. Transient increased urination and hyperglycemia are other possible adverse effects.

DIF: Cognitive Level: Remembering (Knowledge)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient is in an urgent care center with an acute asthma attack. The nurse expects that which medication will be used for initial treatment?
  - a. An anticholinergic such as ipratropium
  - b. A short-acting beta<sub>2</sub> agonist such as albuterol
  - c. A long-acting beta<sub>2</sub> agonist such as salmeterol
  - d. A corticosteroid such as fluticasone

ANS: B

The short-acting beta<sub>2</sub> agonists are commonly used during the acute phase of an asthmatic attack to reduce airway constriction quickly and to restore airflow to normal levels. The other drugs listed are not appropriate for acute asthma attacks. Anticholinergic drugs and long-acting beta<sub>2</sub> agonists are used to prevent attacks; corticosteroids are used to reduce airway inflammation.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. The prescriber has changed the patient's medication regimen to include the leukotriene receptor antagonist (LTRA) montelukast (Singulair) to treat asthma. The nurse will emphasize which point about this medication?
- The proper technique for inhalation must be followed.
  - The patient needs to keep it close by at all times to treat acute asthma attacks.
  - It needs to be taken every day on a continuous schedule, even if symptoms improve.
  - When the asthma symptoms improve, the dosage schedule can be tapered and eventually discontinued.

ANS: C

LTRAs are indicated for chronic, not acute, asthma and are to be taken every day on a continuous schedule, even if symptoms improve. These drugs are taken orally.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

5. After receiving a nebulizer treatment with a beta agonist, the patient states she is feeling slightly nervous and wonders if her asthma is getting worse. What is the nurse's best response?
- "This is an expected adverse effect. Let me take your pulse."
  - "The next scheduled nebulizer treatment will be skipped."
  - "I will notify the physician about this adverse effect."
  - "We will hold the treatment for 24 hours."

ANS: A

Nervousness, tremors, and cardiac stimulation are possible and expected adverse effects of beta agonists. The other options are incorrect responses.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient has prescriptions for two inhalers. One inhaler is a bronchodilator, and the other is a corticosteroid. Which instruction regarding these inhalers will the nurse give to the patient?
- "Take the corticosteroid inhaler first."
  - "Take the bronchodilator inhaler first."
  - "Take these two drugs at least 2 hours apart."
  - "It does not matter which inhaler you use first."

ANS: B

An inhaled bronchodilator is used before the inhaled corticosteroid to provide bronchial relaxation/dilation before administration of the anti-inflammatory drug.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. When educating a patient recently placed on inhaled corticosteroids, the nurse will discuss which potential adverse effects?
- Fatigue and depression
  - Anxiety and palpitations
  - Headache and rapid heart rate
  - Oral candidiasis and dry mouth

ANS: D

Oral candidiasis and dry mouth are two possible adverse effects of inhaled corticosteroids. The other responses are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. The nurse is monitoring drug levels for a patient who is receiving theophylline. The most recent theophylline level was 22 mcg/mL, and the nurse evaluates this level to be:
- below the therapeutic level.
  - at a therapeutic level.
  - above the therapeutic level.
  - at a toxic level.

ANS: C

Although the optimal level may vary from patient to patient, most standard references have suggested that the therapeutic range for theophylline blood level is 10 to 20 mcg/mL. However, most clinicians now advise levels between 5 and 15 mcg/mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. When evaluating a patient's use of a metered-dose inhaler (MDI), the nurse notes that the patient is unable to coordinate the activation of the inhaler with her breathing. What intervention is most appropriate at this time?
- Notify the prescriber that the patient is unable to use the MDI.
  - Obtain an order for a peak flow meter.
  - Obtain an order for a spacer device.
  - Ask the prescriber if the medication can be given orally.

ANS: C

The use of a spacer may be indicated with metered-dose inhalers, especially if success with inhalation is limited. The other options are not appropriate interventions.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse is providing instructions about the Advair inhaler (fluticasone propionate and salmeterol). Which statement about this inhaler is accurate?
- It is indicated for the treatment of acute bronchospasms.
  - It needs to be used with a spacer for best results.
  - Patients need to avoid drinking water for 1 hour after taking this drug.
  - It is used for the prevention of bronchospasms.

ANS: D

Salmeterol is a long-acting beta<sub>2</sub> agonist bronchodilator, while fluticasone is a corticosteroid. In combination, they are used for the maintenance treatment of asthma and COPD. As a long-acting inhaler, Advair is not appropriate for treatment of acute bronchospasms. The other statements are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. The nurse is reviewing medications for the treatment of asthma. Which drugs are used for quick relief of asthma attacks? (*Select all that apply.*)
- Salmeterol (Serevent) inhaler
  - Albuterol (Proventil) nebulizer solution
  - Intravenous systemic corticosteroids
  - Montelukast (Singulair)
  - Fluticasone (Flovent) Rotadisk inhaler

ANS: B, C

Albuterol (a short-acting beta<sub>2</sub> agonist) and intravenous systemic corticosteroids are used to provide quick relief for asthma. See Box 37-2. Salmeterol is a long-acting beta<sub>2</sub> agonist that is indicated for maintenance treatment, not acute episodes. Fluticasone is an inhaled corticosteroid; montelukast is a leukotriene receptor antagonist (LTRA). These types of medications are used for asthma prophylaxis.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is providing instructions to a patient who has a new prescription for a corticosteroid metered-dose inhaler. Which statement by the patient indicates that further instruction is needed? (*Select all that apply.*)
- "I will rinse my mouth with water after using the inhaler and then spit out the water."
  - "I will gargle after using the inhaler and then swallow."
  - "I will clean the plastic inhaler casing weekly by removing the canister and then washing the casing in warm soapy water. I will then let it dry before reassembling."
  - "I will use this inhaler for asthma attacks."

- e. “I will continue to use this inhaler, even if I am feeling better.”
- f. “I will use a peak flow meter to measure my response to therapy.”

ANS: B, D

The inhaled corticosteroid is a maintenance drug used to prevent asthma attacks; it is not indicated for acute asthma attacks. Rinsing the mouth with water is appropriate and necessary to prevent oral fungal infections; the water is not to be swallowed after rinsing. The patient needs to be given instructions about keeping the inhaler clean, including removing the canister from the plastic casing weekly and washing the casing in warm soapy water. Once the casing is dry, the canister and mouthpiece may be put back together and the cap applied. The glucocorticoid may predispose the patient to oral fungal overgrowth, thus the need for implicit instructions about cleaning inhaling devices. Use of a peak flow meter assists in monitoring the patient's response to therapy. The medication needs to be taken as ordered every day, regardless of whether the patient is feeling better.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient has a metered-dose inhaler that contains 200 actuations ('puffs'), and it does not have a dose counter. He is to take two puffs two times a day. If he does not take any extra doses, identify how many days will this inhaler last at the prescribed dose. \_\_\_\_\_

ANS:

50 days

Note the number of doses in the canister, and then calculate the number of days that the canister will last. For this question, assuming that two puffs are taken two times a day, and the inhaler has a capacity of 200 inhalations. Two puffs two times a day equal four inhalations per day. Four divided into 200 yields 50; that is, the inhaler will last approximately 50 days.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient will be receiving oral theophylline (Theo-Dur), 600 mg/day, in three divided doses. Identify how many milligrams the patient will receive per dose. \_\_\_\_\_

ANS:

200 mg

600 mg/day divided by 3 doses per day = 200 mg/dose

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 38: Antibiotics Part 1

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. When reviewing the allergy history of a patient, the nurse notes that the patient is allergic to penicillin. Based on this finding, the nurse would question an order for which class of antibiotics?
  - a. Tetracyclines
  - b. Sulfonamides
  - c. Cephalosporins
  - d. Quinolones

ANS: C

Allergy to penicillin may also result in hypersensitivity to cephalosporins. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is providing teaching to a patient taking an oral tetracycline antibiotic. Which statement by the nurse is correct?
  - a. "Avoid direct sunlight and tanning beds while on this medication."
  - b. "Milk and cheese products result in increased levels of tetracycline."
  - c. "Antacids taken with the medication help to reduce gastrointestinal distress."
  - d. "Take the medication until you are feeling better."

ANS: A

Drug-related photosensitivity occurs when patients take tetracyclines, and it may continue for several days after therapy. Milk and cheese products result in decreased levels of tetracycline when the two are taken together. Antacids also interfere with absorption and should not be taken with tetracycline. Counsel patients to take the entire course of prescribed antibiotic drugs, even if they feel that they are no longer ill.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. When reviewing the medication orders for a patient who is taking penicillin, the nurse notes that the patient is also taking the oral anticoagulant warfarin (Coumadin). What possible effect may occur as the result of an interaction between these drugs?
  - a. The penicillin will cause an enhanced anticoagulant effect of the warfarin.
  - b. The penicillin will cause the anticoagulant effect of the warfarin to decrease.
  - c. The warfarin will reduce the anti-infective action of the penicillin.
  - d. The warfarin will increase the effectiveness of the penicillin.

ANS: A

Administering penicillin reduces the vitamin K in the gut (intestines); therefore, enhanced anticoagulant effect of warfarin may occur. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient is receiving his third intravenous dose of a penicillin drug. He calls the nurse to report that he is feeling “anxious” and is having trouble breathing. What will the nurse do first?
- Notify the prescriber.
  - Take the patient’s vital signs.
  - Stop the antibiotic infusion.
  - Check for allergies.

ANS: C

Hypersensitivity reactions are characterized by wheezing; shortness of breath; swelling of the face, tongue, or hands; itching; or rash. The nurse should immediately stop the antibiotic infusion, have someone notify the prescriber, and stay with the patient to monitor the patient’s vital signs and condition. Checking for allergies should have been done *before* the infusion.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient is admitted with a fever of 102.8° F (39.3° C), origin unknown. Assessment reveals cloudy, foul-smelling urine that is dark amber in color. Orders have just been written to obtain *stat* urine and blood cultures and to administer an antibiotic intravenously. The nurse will complete these orders in which sequence?
- Blood culture, antibiotic dose, urine culture
  - Urine culture, antibiotic dose, blood culture
  - Antibiotic dose, blood and urine cultures
  - Blood and urine cultures, antibiotic dose

ANS: D

All culture specimens should be obtained *before* initiating antibiotic drug therapy; otherwise, the presence of antibiotics in the tissues may result in misleading culture and sensitivity results. The other responses are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient tells the nurse that he is having nausea and decreased appetite during drug therapy with a tetracycline antibiotic. Which statement is the nurse’s best advice to the patient?
- “Take it with cheese and crackers or yogurt.”
  - “Take each dose with a glass of milk.”
  - “Take an antacid with each dose as needed.”
  - “Drink a full glass of water with each dose.”

ANS: D



Oral doses should be given with at least 8 ounces of fluids and food to minimize gastrointestinal upset. Antacids and dairy products will bind with the tetracycline and make it inactive.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is monitoring a patient who has been on antibiotic therapy for 2 weeks. Today the patient tells the nurse that he has had watery diarrhea since the day before and is having abdominal cramps. His oral temperature is 101° F (38.3° C). Based on these findings, which conclusion will the nurse draw?
- The patient's original infection has not responded to the antibiotic therapy.
  - The patient is showing typical adverse effects of antibiotic therapy.
  - The patient needs to be tested for *Clostridium difficile* infection.
  - The patient will need to take a different antibiotic.

ANS: C

Antibiotic-associated diarrhea is a common adverse effect of antibiotics. However, it becomes a serious superinfection when it causes antibiotic-associated colitis, also known as pseudomembranous colitis or simply *C. difficile* infection. This happens because antibiotics disrupt the normal gut flora and can cause an overgrowth of *Clostridium difficile*. The most common symptoms of *C. difficile* colitis are watery diarrhea, abdominal pain, and fever. Whenever a patient who was previously treated with antibiotics develops watery diarrhea, the patient needs to be tested for *C. difficile* infection. If the results are positive, the patient will need to be treated for this serious superinfection.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is monitoring for therapeutic results of antibiotic therapy in a patient with an infection. Which laboratory value would indicate therapeutic effectiveness of this therapy?
- Increased red blood cell count
  - Increased hemoglobin level
  - Decreased white blood cell count
  - Decreased platelet count

ANS: C

Decreased white blood cell counts are an indication of reduction of infection and are a therapeutic effect of antibiotic therapy. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is reviewing the culture results of a patient with an infection, and notes that the culture indicates a gram-positive organism. Which generation of cephalosporin is most appropriate for this type of infection?
- First-generation
  - Second-generation

- c. Third-generation
- d. Fourth-generation

ANS: A

First-generation cephalosporins provide excellent coverage against gram-positive bacteria but limited coverage against gram-negative bacteria.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient will be having oral surgery and has received an antibiotic to take for 1 week before the surgery. The nurse knows that this is an example of which type of therapy?
- a. Empiric
  - b. Prophylactic
  - c. Definitive
  - d. Resistance

ANS: B

Prophylactic antibiotic therapy is used to prevent infection. Empiric therapy involves selecting the antibiotic that can best kill the microorganisms known to be the most common causes of an infection. Definitive therapy occurs once the culture and sensitivity results are known. Resistance is not a type of antibiotic therapy.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient has a urinary tract infection. The nurse knows that which class of drugs is especially useful for such infections?
- a. Macrolides
  - b. Carbapenems
  - c. Sulfonamides
  - d. Tetracyclines

ANS: C

Sulfonamides achieve very high concentrations in the kidneys, through which they are eliminated. Therefore, they are often used in the treatment of urinary tract infections.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. During drug therapy for pneumonia, a female patient develops a vaginal superinfection. The nurse explains that this infection is caused by which of these?
- a. Large doses of antibiotics that kill normal flora.
  - b. The infection spreading from the lungs to the new site of infection.
  - c. Resistance of the pneumonia-causing bacteria to the drugs.
  - d. An allergic reaction to the antibiotics.

ANS: A

Normally occurring bacteria are killed during antibiotic therapy, allowing other flora to take over and resulting in superinfections. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

13. The nurse is preparing to use an antiseptic. Which statement is correct regarding how antiseptics differ from disinfectants?
- Antiseptics are used to sterilize surgical equipment.
  - Disinfectants are used as preoperative skin preparation.
  - Antiseptics are used only on living tissue to kill microorganisms.
  - Disinfectants are used only on nonliving objects to destroy organisms.

ANS: D

Antiseptics primarily inhibit microorganisms but do not necessarily kill them. They are applied exclusively to living tissue. Disinfectants are able to kill organisms and are used only on nonliving objects.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

14. A patient with a long-term intravenous catheter is going home. The nurse knows that if the patient is allergic to seafood, which antiseptic agent is contraindicated?
- Chlorhexidine gluconate (Hibiclens)
  - Hydrogen peroxide
  - Povidone-iodine (Betadine)
  - Isopropyl alcohol

ANS: C

Iodine compounds are contraindicated in patients with allergies to seafood. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. During antibiotic therapy, the nurse will monitor closely for signs and symptoms of a hypersensitivity reaction. Which of these assessment findings may be an indication of a hypersensitivity reaction? (*Select all that apply.*)
- Wheezing
  - Diarrhea
  - Shortness of breath
  - Swelling of the tongue
  - Itching
  - Black, hairy tongue

ANS: A, C, D, E

Hypersensitivity reactions may be manifested by wheezing; shortness of breath; swelling of the face, tongue, or hands; itching; or rash.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

2. The nurse is reviewing the medication history of a patient who will be taking a sulfonamide antibiotic. During sulfonamide therapy, a significant drug interaction may occur with which of these drugs or drug classes? (*Select all that apply.*)
- Opioids
  - Oral contraceptives
  - Sulfonylureas
  - Antihistamines
  - Phenytoin (Dilantin)
  - Warfarin (Coumadin)

ANS: B, C, E, F

Sulfonamides may potentiate the hypoglycemic effects of sulfonylureas in diabetes treatment and the toxic effects of phenytoin. They also enhance the anticoagulant effects of warfarin, which can lead to hemorrhage. Sulfonamides may also reduce the efficacy of oral contraceptives.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## COMPLETION

1. A patient will be receiving amoxicillin suspension 300 mg via a gastrostomy tube every 8 hours. The medication comes in a bottle that contains 400 mg/5 mL. Identify how many milliliters the nurse will administer with each dose. (record answer using one decimal place) \_\_\_\_\_

ANS:

3.8 mL

400 mg:5mL :: 300 mg:x mL.

Solve for  $x$ :  $(400 \times x) = (5 \times 300)$ ;  $400x = 1500$ ;  $x = 3.75$ , rounding to 3.8; administer 3.8 mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

2. A patient will be receiving penicillin G potassium, 12 million units daily in divided doses every 4 hours IVPB. Identify how many units the patient will receive for each dose each day. \_\_\_\_\_

ANS:

2 million units

If a medication is given every 4 hours, then there will be 6 doses in each 24-hour day.  
( $24 \div 4 = 6$ ). 12 million units  $\div$  6 doses = 2 million units/dose.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## Chapter 39: Antibiotics Part 2

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. When a patient is on aminoglycoside therapy, the nurse will monitor the patient for which indicators of potential toxicity?
  - a. Fever
  - b. White blood cell count of 8000 cells/mm<sup>3</sup>
  - c. Tinnitus and dizziness
  - d. Decreased blood urea nitrogen (BUN) levels

ANS: C

Dizziness, tinnitus, hearing loss, or a sense of fullness in the ears could indicate ototoxicity, a potentially serious toxicity in a patient. Nephrotoxicity is indicated by *rising* blood urea nitrogen and creatinine levels. Fever may be indicative of the patient's infection; a white blood cell count of 7000 cells/mm<sup>3</sup> is within the normal range of 5000 to 10,000 cells/mm<sup>3</sup>.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. The nurse is administering a vancomycin (Vancocin) infusion. Which measure is appropriate for the nurse to implement in order to reduce complications that may occur with this drug's administration?
  - a. Monitoring blood pressure for hypertension during the infusion
  - b. Discontinuing the drug immediately if red man syndrome occurs
  - c. Restricting fluids during vancomycin therapy
  - d. Infusing the drug over at least 1 hour

ANS: D

Infuse the medication over at least 1 hour to reduce the occurrence of red man syndrome. Adequate hydration (at least 2 L of fluid in 24 hours) during vancomycin therapy is important for the prevention of nephrotoxicity. Hypotension may occur during the infusion, especially if it is given too rapidly.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. Which problem may occur in a patient who has started aminoglycoside therapy?
  - a. Constipation
  - b. Renal damage
  - c. Gynecomastia
  - d. Leukocytosis

ANS: B

Patients on aminoglycoside therapy have an increased risk for nephrotoxicity. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient who has been hospitalized for 2 weeks has developed a pressure ulcer that contains multidrug-resistant *Staphylococcus aureus* (MRSA). Which drug would the nurse expect to be chosen for therapy?
- Metronidazole (Flagyl)
  - Ciprofloxacin (Cipro)
  - Vancomycin (Vancocin)
  - Tobramycin (Nebcin)

ANS: C

Vancomycin is the antibiotic of choice for the treatment of MRSA. The other drugs are not used for MRSA.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient is receiving aminoglycoside therapy and will be receiving a beta-lactam antibiotic as well. The patient asks why two antibiotics have been ordered. What is the nurse's best response?
- "The combined effect of both antibiotics is greater than each of them alone."
  - "One antibiotic is not strong enough to fight the infection."
  - "We have not yet isolated the bacteria, so the two antibiotics are given to cover a wide range of microorganisms."
  - "We can give a reduced amount of each one if we give them together."

ANS: A

Aminoglycosides are often used in combination with other antibiotics, such as beta-lactams or vancomycin, in the treatment of various infections because the combined effect of the two antibiotics is greater than that of either drug alone.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is reviewing the medication orders for a patient who will be receiving aminoglycoside therapy. Which other medication or medication class, if ordered, would be a potential interaction concern?
- Calcium channel blockers
  - Phenytoin
  - Proton pump inhibitors
  - Loop diuretics

ANS: D

Concurrent use of aminoglycosides with loop diuretics increases the risk for ototoxicity. The other drugs and drug classes do not cause interactions.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse checks the patient's laboratory work prior to administering a dose of vancomycin (Vancocin) and finds that the trough vancomycin level is 24 mcg/mL. What will the nurse do next?
- Administer the vancomycin as ordered.
  - Hold the drug, and administer 4 hours later.
  - Hold the drug, and notify the prescriber.
  - Repeat the test to verify results.

ANS: C

Optimal blood levels of vancomycin are a trough level of 10 to 20 mcg/mL. Measurement of peak levels is no longer routinely recommended, and only trough levels are commonly monitored. Blood samples for measurement of trough levels are drawn immediately before administration of the next dose. Because of the increase in resistant organisms, many clinicians use a trough level of 15 to 20 mcg/mL as their goal. These trough levels mean that even just before the next dose is due, when drug levels should be low, the drug levels are actually too high.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. A patient has been diagnosed with carbapenem-resistant *Enterobacteriaceae* (CRE). The nurse expects to see orders for which drug?
- Dapsone (Cubicin), a miscellaneous antibiotic
  - Ciprofloxacin (Cipro), a quinolone
  - Linezolid (Zyvox), an oxazolidinone
  - Colistimethate sodium (Coly-Mycin), a polypeptide antibiotic

ANS: D

Colistimethate sodium (Coly-Mycin), commonly referred to as colistin, is now being used again, often as one of the only drugs available to treat CRE. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A 79-year-old patient is receiving a quinolone as treatment for a complicated incision infection. The nurse will monitor for which adverse effect that is associated with these drugs?
- Neuralgia
  - Double vision
  - Hypotension
  - Tendonitis and tendon rupture

ANS: D



A black box warning is required by the U.S. Food and Drug Administration for all quinolones because of the increased risk for tendonitis and tendon rupture with use of the drugs. This effect is more common in elderly patients, patients with renal failure, and those receiving concurrent glucocorticoid therapy (e.g., prednisone). The other options are not common adverse effects.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is administering intravenous vancomycin (Vancocin) to a patient who has had gastrointestinal surgery. Which nursing measures are appropriate? (*Select all that apply.*)
  - a. Monitoring serum creatinine levels
  - b. Restricting fluids while the patient is on this medication
  - c. Warning the patient that a flushed feeling or facial itching may occur
  - d. Instructing the patient to report dizziness or a feeling of fullness in the ears
  - e. Reporting a trough drug level of 11 mcg/mL and holding the drug
  - f. Reporting a trough drug level of 24 mcg/mL and holding the drug

ANS: A, C, D, F

Constant monitoring for drug-related neurotoxicity, nephrotoxicity, ototoxicity, and superinfection remains critical to patient safety. Monitor for nephrotoxicity by monitoring serum creatinine levels. Ototoxicity may be indicated if the patient experiences dizziness or a feeling of fullness in the ears, and these symptoms must be reported immediately. Vancomycin infusions may cause red man syndrome, which is characterized by flushing of the neck and face and a decrease in blood pressure. In addition, adequate hydration (at least 2 L of fluids every 24 hours unless contraindicated) is most important to prevent nephrotoxicity. Optimal trough blood levels of vancomycin are 10 to 20 mcg/mL; therefore, the drug should not be administered when there is a trough level of 24 mcg/mL.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. A patient will be receiving nitrofurantoin (Macrochantin) treatment for a urinary tract infection. The nurse is reviewing the patient's history and will question the nitrofurantoin order if which disorder is present in the history? (*Select all that apply.*)
  - a. Liver disease
  - b. Coronary artery disease
  - c. Hyperthyroidism
  - d. Type 1 diabetes mellitus
  - e. Chronic renal disease

ANS: A, E

Nitrofurantoin is contraindicated in cases of known drug allergy and also in cases of significant renal function impairment, because the drug concentrates in the urine. Because adverse effects include hepatotoxicity, which is rare but often fatal, the nurse should also question the order if liver disease is present. The other options are not contraindications.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## COMPLETION

1. A patient with a *Pseudomonas* species urinary infection will be receiving amikacin (Amikin) 5 mg/kg once daily via intravenous infusion. The patient weighs 198 pounds, and the medication is available in an injection solution strength of 250 mg/mL. Identify how many milliliters of medication will be drawn up for this injection. (record answer using one decimal place) \_\_\_\_\_

ANS:

1.8 mL

Calculate the patient's weight in kilograms:  $198 \text{ pounds} \div 2.2 = 90 \text{ kg}$

Calculate mg/kg/dose:  $5 \text{ mg} \times 90 \text{ kg} = 450 \text{ mg/dose}$

Calculate milliliters needed for this dose:

$250 \text{ mg} : 1 \text{ mL} :: 450 \text{ mg} : x \text{ mL}$

Solve for  $x$ :  $(250 \times x) = (1 \times 450)$ ;  $250x = 450$ ;  $x = 1.8 \text{ mL}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 40: Antiviral Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient who is diagnosed with genital herpes is taking topical acyclovir, and the nurse is providing instructions about adverse effects. The nurse will discuss which adverse effects of topical acyclovir therapy?
  - a. Insomnia and nervousness
  - b. Temporary swelling and rash
  - c. Burning when applied
  - d. This medication has no adverse effects.

ANS: C

Transient burning may occur with topical application of acyclovir. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

2. A patient who has undergone a lung transplant has contracted cytomegalovirus (CMV) retinitis. The nurse expects which drug to be ordered for this patient?
  - a. Acyclovir (Zovirax)
  - b. Ganciclovir (Cytovene)
  - c. Ribavirin (Virazole)
  - d. Amantadine (Symmetrel)

ANS: B

Ganciclovir is indicated for the treatment of cytomegalovirus retinitis. Acyclovir is used for herpes simplex types 1 and 2, and herpes zoster; amantadine is used for influenza type A; and zanamivir is used for influenza types A and B.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. An infant has been hospitalized with a severe lung infection caused by the respiratory syncytial virus (RSV) and will be receiving medication via the inhalation route. The nurse expects which drug to be used?
  - a. Acyclovir (Zovirax)
  - b. Ganciclovir (Cytovene)
  - c. Amantadine (Symmetrel)
  - d. Ribavirin (Virazole)

ANS: D

The inhalational form of ribavirin (Virazole) is used primarily in the treatment of hospitalized infants with severe lower respiratory tract infections caused by RSV. The other drugs listed are not used for the treatment of RSV.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient who is HIV-positive has been receiving medication therapy that includes zidovudine (Retrovir). However, the prescriber has decided to stop the zidovudine because of its dose-limiting adverse effect. Which of these conditions is the dose-limiting adverse effect of zidovudine therapy?
- Retinitis
  - Renal toxicity
  - Hepatotoxicity
  - Bone marrow suppression

ANS: D

Bone marrow suppression is often the reason that a patient with HIV infection has to be switched to another anti-HIV drug such as didanosine. The two drugs can be taken together, cutting back on the dosages of both and thus decreasing the likelihood of toxicity. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse is administering intravenous acyclovir (Zovirax) to a patient with a viral infection. Which administration technique is correct?
- Infuse intravenous acyclovir slowly, over at least 1 hour.
  - Infuse intravenous acyclovir by rapid bolus.
  - Refrigerate intravenous acyclovir.
  - Restrict oral fluids during intravenous acyclovir therapy.

ANS: A

Intravenous infusions must be diluted as recommended (e.g., with 5% dextrose in water or normal saline) and infused with caution. Infusion over longer than 1 hour is suggested to avoid the renal tubular damage seen with more rapid infusions. Adequate hydration should be encouraged (unless contraindicated) during the infusion and for several hours afterward to prevent drug-related crystalluria.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient is receiving a ribavirin (Virazole) aerosol treatment. Which precaution is important for the pregnant health care provider?
- No special precautions are needed.
  - Wearing a mask while in the room during the treatment.
  - Staying out of the room during the aerosol treatment.
  - Limiting exposure to the aerosol treatment to a maximum of 15 minutes per shift.

ANS: C

Pregnant health care providers or those wishing to become pregnant must stay out of the patient rooms when the aerosol form is being administered, due to the potential for secondhand inhalation on the part of the health care provider. Ribavirin is classified as a pregnancy category X drug and carries a black box warning relating to significant teratogenic and/or embryocidal effects.

The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

7. A patient is taking a combination of antiviral drugs as treatment for early stages of a viral infection. While discussing the drug therapy, the patient asks the nurse if the drugs will kill the virus. When answering, the nurse keeps in mind which fact about antiviral drugs?
- They are given for palliative reasons only.
  - They will be effective as long as the patient is not exposed to the virus again.
  - They can be given in large enough doses to eradicate the virus without harming the body's healthy cells.
  - They may also kill healthy cells while killing viruses.

ANS: D

Because viruses reproduce in human cells, selective killing is difficult; consequently, many healthy human cells, in addition to virally infected cells, may be killed in the process, and this results in the serious toxicities that are involved with these drugs. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A young adult calls the clinic to ask for a prescription for "that new flu drug." He says he has had the flu for almost 4 days and just heard about a drug that can reduce the symptoms. What is the nurse's best response to his request?
- "Now that you've had the flu, you will need a booster vaccination, not the antiviral drug."
  - "We will need to do a blood test to verify that you actually have the flu."
  - "Drug therapy should be started within 2 days of symptom onset, not 4 days."
  - "We'll get you a prescription. As long as you start treatment within the next 24 hours, the drug should be effective."

ANS: C

These drugs need to be started within 2 days of influenza symptom onset; they can be used for prophylaxis and treatment of influenza. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is providing counseling to a woman who is HIV positive and has just discovered that she is pregnant. Which anti-HIV drug is given to HIV-infected pregnant women to prevent transmission of the virus to the infant?

- a. Acyclovir (Zovirax)
- b. Zidovudine (Retrovir)
- c. Ribavirin (Virazole)
- d. Foscarnet (Foscavir)

ANS: B

Zidovudine, along with various other antiretroviral drugs, is given to HIV-infected pregnant women and even to newborn babies to prevent maternal transmission of the virus to the infant. The other drugs are non-HIV antiviral drugs.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. A patient who is diagnosed with genital herpes is taking topical acyclovir. The nurse will provide which teaching for this patient? (*Select all that apply.*)
  - a. “Be sure to wash your hands thoroughly before and after applying this medicine.”
  - b. “Apply this ointment until the lesion stops hurting.”
  - c. “Use a clean glove when applying this ointment.”
  - d. “If your partner develops these lesions, then your partner can also use the medication.”
  - e. “You will need to avoid touching the area around your eyes.”
  - f. “You will have to practice abstinence when these lesions are active.”

ANS: A, C, E, F

This medication needs to be applied as long as prescribed, and the medication needs to be applied with clean gloves. Prescriptions should not be shared; if the partner develops these lesions, the partner will have to be evaluated before medication is prescribed, if needed. Eye contact should be avoided. The presence of active genital herpes lesions requires sexual abstinence.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological Therapies

2. A patient is in the HIV clinic for a follow-up appointment. He has been on antiretroviral therapy for HIV for more than 3 years. The nurse will assess for which potential adverse effects of long-term antiretroviral therapy? (*Select all that apply.*)
  - a. Lipodystrophy
  - b. Liver damage
  - c. Kaposi’s sarcoma
  - d. Osteoporosis
  - e. Type 2 diabetes

ANS: A, B, D, E

Anti-HIV drugs produce strain on the liver and may result in liver disease. A major adverse effect of protease inhibitors is lipid abnormalities, including lipodystrophy or redistribution of fat stores under the skin. In addition, dyslipidemias such as hypertriglyceridemia can occur, and insulin resistance and type 2 diabetes symptoms can result. The increase in long-term antiretroviral drug therapy due to prolonged disease survival has led to the emergence of another long-term adverse effect associated with these medications—bone demineralization and possible osteoporosis. Kaposi’s sarcoma is an opportunistic disease associated with HIV, not a result of long-term drug therapy.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

## COMPLETION

1. A patient with a viral infection is to receive ganciclovir (Cytovene) 5 mg/kg/day IVPB every morning. The patient weighs 110 pounds. Identify how many milligrams this patient will receive for this dose. \_\_\_\_\_

ANS:

250 mg

Convert 110 pounds to kilograms:  $110 \div 2.2 = 50$  kg.

Calculate dose:  $5 \text{ mg/kg/day} \times 50 \text{ kg} = 250 \text{ mg/day}$ .

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 41: Antitubercular Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is discussing adverse effects of antitubercular drugs with a patient who has active tuberculosis. Which potential adverse effect of antitubercular drug therapy should the patient report to the prescriber?
  - a. Gastrointestinal upset
  - b. Headache and nervousness
  - c. Reddish-orange urine and stool
  - d. Numbness and tingling of extremities

ANS: D

Patients on antitubercular therapy should report experiencing numbness and tingling of extremities, which may indicate peripheral neuropathy. Some drugs may color the urine, stool, and other body secretions reddish-orange, but this is not an effect that needs to be reported. Patients need to be informed of this expected effect. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient who has been taking isoniazid (INH) has a new prescription for pyridoxine. She is wondering why she needs this medication. The nurse explains that pyridoxine is often given concurrently with the isoniazid to prevent which condition?
  - a. Hair loss
  - b. Renal failure
  - c. Peripheral neuropathy
  - d. Heart failure

ANS: C

Pyridoxine (vitamin B<sub>6</sub>) may be beneficial for isoniazid-induced peripheral neuropathy. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. The nurse will assess the patient for which potential contraindication to antitubercular therapy?
  - a. Glaucoma
  - b. Anemia
  - c. Heart failure
  - d. Hepatic impairment

ANS: D



Results of liver function studies (e.g., bilirubin level, liver enzyme levels) need to be assessed because isoniazid and rifampin may cause hepatic impairment; severe liver dysfunction is a contraindication to these drugs. In addition, the patient's history of alcohol use needs to be assessed.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. When monitoring patients on antitubercular drug therapy, the nurse knows that which drug may cause a decrease in visual acuity?
- Rifampin (Rifadin)
  - Isoniazid (INH)
  - Ethambutol (Myambutol)
  - Streptomycin

ANS: C

Ethambutol may cause a decrease in visual acuity or even blindness resulting from retrobulbar neuritis. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient has been taking antitubercular therapy for 3 months. The nurse will assess for what findings that indicate a therapeutic response to the drug therapy?
- The chronic cough is gone.
  - There are two consecutive negative purified protein derivative (PPD) results over 2 months.
  - There is increased tolerance to the medication therapy, and there are fewer reports of adverse effects.
  - There is a decrease in symptoms of tuberculosis along with improved chest radiographs and sputum cultures.

ANS: D

A therapeutic response to antitubercular therapy is manifested by a decrease in the symptoms of tuberculosis, such as cough and fever, and by weight gain. The results of laboratory studies (culture and sensitivity tests) and the chest radiographic findings will be used to confirm the clinical findings of resolution of the infection.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is counseling a woman who will be starting rifampin (Rifadin) as part of antitubercular therapy. The patient is currently taking oral contraceptives. Which statement is true regarding rifampin therapy for this patient?
- Women have a high risk for thrombophlebitis while on this drug.
  - A higher dose of rifampin will be necessary because of the contraceptive.
  - Oral contraceptives are less effective while the patient is taking rifampin.
  - The incidence of adverse effects is greater if the two drugs are taken together.

ANS: C

Women taking oral contraceptives and rifampin need to be counseled about other forms of birth control because of the impaired effectiveness of the oral contraceptives during concurrent use of rifampin.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

7. The nurse is reviewing the medication administration record of a patient who is taking isoniazid (INH). Which drug or drug class has a significant drug interaction with isoniazid?
- Pyridoxine (vitamin B<sub>6</sub>)
  - Penicillins
  - Phenytoin (Dilantin)
  - Benzodiazepines

ANS: C

Taking INH with phenytoin will cause decreased metabolism of the phenytoin, leading to increased drug effects. Pyridoxine is often given with isoniazid to prevent peripheral neuropathy. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient who has started drug therapy for tuberculosis wants to know how long he will be on the medications. Which response by the nurse is correct?
- “Drug therapy will last until the symptoms have stopped.”
  - “Drug therapy will continue until the tuberculosis develops resistance.”
  - “You should expect to take these drugs for as long as 24 months.”
  - “You will be on this drug therapy for the rest of your life.”

ANS: C

Drug therapy commonly lasts for 24 months if consistent drug therapy has been maintained. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is preparing to administer morning medications to a patient who has been newly diagnosed with tuberculosis. The patient asks, “Why do I have to take so many different drugs?” Which response by the nurse is correct?
- “Your prescriber hopes that at least one of these drugs will work to fight the tuberculosis.”
  - “Taking multiple drugs is recommended because of the increasing presence of resistance to TB drug therapy.”
  - “Using more than one drug can help to reduce side effects.”
  - “Using multiple drugs enhances the effect of each drug.”

ANS: B

The 2016 American Thoracic Society/CDC treatment guidelines recommend the use of multiple medications because of the increasing presence of resistance. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient newly diagnosed with tuberculosis (TB) has been taking antitubercular drugs for 1 week calls the clinic and is very upset. He says, "My urine is dark orange! What's wrong with me?" Which response by the nurse is correct?
- "You will need to stop the medication, and it will go away."
  - "It's possible that the TB is worse. Please come in to the clinic to be checked."
  - "This is not what we usually see with these drugs. Please come in to the clinic to be checked."
  - "This is an expected side effect of the medicine. Let's review what to expect."

ANS: D

Rifampin, one of the first-line drugs for TB, causes a red-orange-brown discoloration of urine, tears, sweat, and sputum. Patients need to be warned about this side effect. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### **MULTIPLE RESPONSE**

1. The nurse is providing patient teaching for a patient who is starting antitubercular drug therapy. Which of these statements should be included? (*Select all that apply.*)
- "Take the medications until the symptoms disappear."
  - "Take the medications at the same time every day."
  - "You will be considered contagious during most of the illness and must take precautions to avoid spreading the disease."
  - "Stop taking the medications if you have severe adverse effects."
  - "Avoid alcoholic beverages while on this therapy."
  - "If you notice reddish-brown or reddish-orange urine, stop taking the drug and contact your doctor right away."
  - "If you experience a burning or tingling in your fingers or toes, report it to your prescriber immediately."
  - "Oral contraceptives may not work while you are taking these drugs, so you will have to use another form of birth control."

ANS: B, E, G, H

Medications for tuberculosis must be taken on a consistent schedule to maintain blood levels. Medication therapy for tuberculosis may last up to 24 months, long after symptoms disappear, and patients are infectious during the early part of the treatment. Compliance with antitubercular drug therapy is key, so if symptoms become severe, the prescriber should be contacted for an adjustment of the drug therapy. The medication must not be stopped. Because of potential liver toxicity, patients on this drug therapy must not drink alcohol. Discoloration of the urine is an expected adverse effect, and patients need to be warned about it beforehand. Burning or tingling in the fingers or toes may indicate that peripheral neuropathy is developing, and the prescriber needs to be notified immediately. A second form of birth control must be used because antitubercular drug therapy makes oral contraceptives ineffective.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 42: Antifungal Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. During an intravenous (IV) infusion of amphotericin B, a patient develops tingling and numbness in his toes and fingers. What will the nurse do first?
  - a. Discontinue the infusion immediately.
  - b. Reduce the infusion rate gradually until the adverse effects subside.
  - c. Administer the medication by rapid IV infusion to reduce these effects.
  - d. Nothing; these are expected side effects of this medication.

ANS: A

Once the intravenous infusion of amphotericin B has begun, vital signs must be monitored frequently to assess for adverse reactions such as cardiac dysrhythmias, visual disturbances, paresthesias (numbness or tingling of the hands or feet), respiratory difficulty, pain, fever, chills, and nausea. If these adverse effects or a severe reaction occur, the infusion must be discontinued (while the patient is closely monitored) and the prescriber contacted. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. If a patient is taking fluconazole (Diflucan) with an oral anticoagulant, the nurse will monitor for which possible interaction?
  - a. Reduced action of oral anticoagulants
  - b. Increased effects of oral anticoagulants
  - c. Hypokalemia
  - d. Decreased effectiveness of the antifungal drug

ANS: B

Azole antifungal drugs increase the effects of oral anticoagulants. As a result, increased bleeding may occur. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The nurse is preparing an infusion of amphotericin B for a patient who has a severe fungal infection. Which intervention is appropriate regarding the potential adverse effects of amphotericin B?
  - a. Discontinuing the infusion immediately if fever, chills, or nausea occur
  - b. Gradually increasing the infusion rate until the expected adverse effects occur
  - c. If fever, chills, or nausea occur during the infusion, administering medications to treat the symptoms
  - d. Before beginning the infusion, administering an antipyretic and an antiemetic drug

ANS: D

Almost all patients given the drug intravenously experience fever, chills, hypotension, tachycardia, malaise, muscle and joint pain, anorexia, nausea and vomiting, and headache. For this reason, pretreatment with an antipyretic (acetaminophen), antihistamines, and antiemetics may be conducted to decrease the severity of the infusion-related reaction. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. The nurse is administering one of the lipid formulations of amphotericin B. When giving this drug, which concept is important to remember?
- The lipid formulations may be given in oral form.
  - The doses are much lower than the doses of the older drugs.
  - The lipid formulations are associated with fewer adverse effects than the older drugs.
  - There is no difference in cost between the newer and older forms.

ANS: C

Newer lipid formulations of amphotericin B have been developed in an attempt to decrease the incidence of its adverse effects and increase its efficacy. However, the lipid formulations are more costly.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse is reviewing instructions for vaginal antifungal drugs with a patient. Which statement by the nurse is an appropriate instruction regarding these drugs?
- “The medication can be stopped when your symptoms are relieved.”
  - “Discontinue this medication if menstruation begins.”
  - “Daily douching is part of the treatment for vaginal fungal infections.”
  - “Abstain from sexual intercourse until the treatment has been completed and the infection has resolved.”

ANS: D

Female patients taking antifungal medications for the treatment of vaginal infections need to abstain from sexual intercourse until the treatment has been completed and the infection has resolved. The medication needs to be taken for as long as prescribed. Instruct patients to continue to take the medication even if they are actively menstruating. Douching is not an appropriate intervention.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient is infected by invasive aspergillosis, and the medical history reveals that the patient has not been able to tolerate several antifungal drugs. The nurse anticipates an order for which medication to treat this infection?
- Fluconazole (Diflucan)
  - Micafungin (Mycamine)

- c. Caspofungin (Cancidas)
- d. Nystatin (Mycostatin)

ANS: C

Caspofungin is used for treating severe infection by *Aspergillus* species (invasive aspergillosis) in patients who are intolerant of or refractory to other drugs.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient with a severe fungal infection has orders for voriconazole (Vfend). The nurse is reviewing the patient's medical record and would be concerned if which assessment finding is noted?
- a. Decreased breath sounds in the lower lobes
  - b. Patient is also taking quinidine
  - c. History of type 2 diabetes
  - d. Potassium level of 4.0 mEq/L

ANS: B

Voriconazole is contraindicated when co-administered with certain other drugs metabolized by the cytochrome P-450 enzyme 3A4 (e.g., quinidine) because of the risk for inducing serious cardiac dysrhythmias.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. During therapy with amphotericin B, the nurse will monitor the patient for known adverse effects that would be reflected by which laboratory result?
- a. Serum potassium level of 2.7 mEq/L
  - b. Serum potassium level of 5.8 mEq/L
  - c. White blood cell count of 7000 cells/mm<sup>3</sup>
  - d. Platelet count of 300,000/microliter

ANS: A

The nurse needs to monitor for hypokalemia, a possible adverse effect of amphotericin B. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient has received a prescription for a 2-week course of antifungal suppositories for a vaginal yeast infection. She asks the nurse if there is an alternative to this medication, saying, "I don't want to do this for 2 weeks!" Which is a possibility in this situation?
- a. A single dose of a vaginal antifungal cream.
  - b. A one-time infusion of amphotericin B.
  - c. A single dose of a fluconazole (Diflucan) oral tablet.
  - d. There is no better alternative to the suppositories.

ANS: C

A single oral dose of fluconazole may be used to treat vaginal candidiasis. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient is taking nystatin (Mycostatin) oral lozenges to treat an oral candidiasis infection resulting from inhaled corticosteroid therapy for asthma. Which instruction by the nurse is appropriate?
- “Chew the lozenges until they are completely dissolved.”
  - “Let the lozenge dissolve slowly and completely in your mouth without chewing it.”
  - “Rinse your mouth with water before taking the inhaler.”
  - “Rinse your mouth with mouthwash after taking the inhaler.”

ANS: B

Nystatin may be given orally in the form of lozenges, or troches, which need to be slowly and completely dissolved in the mouth for optimal effects; tablets are not to be chewed or swallowed whole. The other options are incorrect. Patients taking an inhaled corticosteroid must rinse their mouths with water thoroughly *after* taking the inhaler.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is administering an amphotericin B infusion. Which actions by the nurse are appropriate? (*Select all that apply.*)
- Administering the medication by rapid IV infusion
  - Discontinuing the drug immediately if the patient develops tingling and numbness in the extremities
  - If adverse effects occur, reducing the IV rate gradually until they subside
  - Using an infusion pump for IV therapy
  - Monitoring the IV site for signs of phlebitis and infiltration
  - Administering premedication for fever and nausea
  - Knowing that the intravenous solution for amphotericin B will be cloudy
  - Knowing that muscle twitching may indicate hypokalemia

ANS: B, D, E, F

If the patient develops tingling and numbness in the extremities (paresthesias), discontinue the drug immediately. An infusion pump is necessary for the infusion, and the nurse will monitor the IV site for signs of phlebitis and infiltration. Premedication to reduce the adverse effects of fever, malaise, and nausea may be ordered. The IV solution must be clear and without precipitates; and muscle *weakness*, not twitching, may indicate hypokalemia. The medication must be administered at the rate recommended and stopped, not slowed, if adverse reactions occur.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation



MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A patient will be taking fluconazole (Diflucan) 100 mg/day PO for 2 weeks. The patient is unable to swallow tablets, so an oral suspension that contains 10 mg/mL is available. Identify how many milliliters will the nurse administer with each dose. \_\_\_\_\_

ANS:

10 mL

10 mg:1 mL :: 100 mg: $x$  mL.

$(10 \times x) = (1 \times 100)$ ;  $10x = 100$ ;  $x = 10$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 43: Antimalarial, Antiprotozoal, and Anthelmintic Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. A patient who has a helminthic infection has a prescription for pyrantel (Antiminth). Which is one of the common adverse effects that the patient may experience while on this therapy?
  - a. Insomnia
  - b. Seizures
  - c. Diarrhea
  - d. Dark discoloration of the urine

ANS: C

Diarrhea and abdominal pain are some of the possible gastrointestinal effects of pyrantel. See Table 43-11 for other adverse effects. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient has an infestation with flukes (trematodes). The nurse anticipates the use of which drug to treat this infestation?
  - a. Praziquantel (Biltricide)
  - b. Pyrantel (Pin-X)
  - c. Metronidazole (Flagyl)
  - d. Ivermectin (Stromectol)

ANS: A

Praziquantel is an anthelmintic that is used to kill flukes (trematodes). Metronidazole is used to treat protozoal infections. The other drugs listed are used for other helminthic infestations.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient who is being treated for malaria has started therapy with quinine and tetracycline. He asks the nurse why he is on an antibiotic when malaria is caused by a parasite. Which response by the nurse is correct?
  - a. "The tetracycline prevents reinfection by the malarial parasite."
  - b. "The antibiotic is combined with quinine to reduce the side effects of the quinine."
  - c. "An antibacterial drug prevents the occurrence of superinfection during antimalarial therapy."
  - d. "The two drugs are more effective against malaria when given together."

ANS: D

The combination of quinine and tetracycline takes advantage of their synergistic protozoacidal effects. The other responses are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A woman is traveling to a country where she will be at high risk for malarial infection. What will the nurse teach her regarding prophylactic therapy with hydroxychloroquine (Plaquenil)?
- Hydroxychloroquine is better absorbed and has fewer adverse effects if taken on an empty stomach.
  - The drug is started 3 weeks before exposure but can be discontinued once she leaves the area.
  - The medication is taken only when she observes mosquito bites because it can have toxic effects if taken unnecessarily.
  - The drug is usually started 1 to 2 weeks before traveling to endemic areas and is continued for 4 weeks after leaving the area.

ANS: D

Prophylaxis of malaria with hydroxychloroquine is usually started 1 to 2 weeks before exposure and continued for 4 weeks after the person has left the area. The medication should be taken with food to decrease gastrointestinal upset.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. A patient with late-stage HIV infection also has *Pneumocystis jirovecii* pneumonia. The nurse anticipates treatment with which medication for this pneumonia?
- Ivermectin (Stromectol)
  - Atovaquone (Mepron)
  - Praziquantel (Biltricide)
  - Metronidazole (Flagyl)

ANS: B

Pentamidine and atovaquone are used for the treatment of pneumonia caused by *P. jirovecii*. The other options are not used for this pneumonia.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient with an intestinal infection that is positive for the *Giardia lamblia* organism will be taking an antiprotozoal drug. The nurse will include which information in the teaching plan for this patient?
- The urine may become dilute and pale during therapy.
  - Taking the medications with food reduces gastrointestinal upset.
  - The medications should be taken on an empty stomach.
  - The drugs may be discontinued once the diarrhea subsides.

ANS: B

Taking these drugs with food reduces gastrointestinal upset. Antiprotozoal drugs may cause the urine to turn dark. These drugs should be administered for the prescribed length of time to ensure complete eradication of the infection.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is reviewing antimalarial drug therapy with a patient and instructs the patient to watch for and report which potential adverse reactions?
- Drowsiness
  - Insomnia
  - Visual disturbances
  - Constipation

ANS: C

Encourage the patient to contact the prescriber if there is unresolved nausea, vomiting, profuse diarrhea, or abdominal pain and to report immediately any visual disturbances, dizziness, or respiratory difficulties.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient is being evaluated for a possible helminthic infection. The nurse knows that which statement about anthelmintic therapy is true?
- The drugs may cause severe drowsiness.
  - Anthelmintics are very specific in their actions.
  - Anthelmintics are effective against broad classes of infestations.
  - The drugs are used to treat protozoal infections such as intestinal amebiasis.

ANS: B

Anthelmintics are very specific in their actions, and it is important to identify the cause of the infestation before beginning treatment. They are not used to treat protozoal infections, and they do not cause severe drowsiness.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient is experiencing the exoerythrocytic phase of malaria. The nurse expects which drug to be used for this patient?
- Quinine
  - Chloroquine (Aralen)
  - Mefloquine (Lariam)
  - Primaquine

ANS: D

Primaquine is one of the few antimalarial drugs that can destroy the malarial parasites while they are in their exoerythrocytic phase. The other drugs are effective during the erythrocytic, or blood, phase.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient is receiving hydroxychloroquine therapy but tells the nurse that she has never traveled out of her city. The nurse knows that a possible reason for this drug therapy is which condition?
- Lyme disease
  - Toxoplasmosis
  - Systemic lupus erythematosus
  - Intestinal tapeworms

ANS: C

Hydroxychloroquine, which is used for malaria, also possesses anti-inflammatory actions and has been used to treat rheumatoid arthritis and systemic lupus erythematosus. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. Hydroxychloroquine (Plaquenil) is prescribed as part of malaria prophylaxis for a patient who will be traveling. The nurse will discuss which potential adverse effects with the patient? (*Select all that apply.*)
- Diarrhea
  - Myalgia
  - Insomnia
  - Dizziness
  - Rash
  - Headache

ANS: A, D, E, F

Diarrhea, anorexia, nausea, vomiting, dizziness, rash, and headache are potential adverse effects of hydroxychloroquine. See Table 43-1 for other common adverse effects. The other options are not adverse effects of this drug.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A patient with *Pneumocystis jirovecii* pneumonia will be receiving pentamidine as an intravenous piggyback (IVPB) dose. The medication has been added to a 100-mL bag of D<sub>5</sub>W for the infusion, and it needs to infuse over 120 minutes. The nurse will set the infusion pump to infuse at what rate for this IVPB medication? \_\_\_\_\_

ANS:

50 mL/hr

First, convert 120 minutes to hours because the infusion pump will infuse at a milliliter per hour rate.

$120 \text{ minutes} \times (1 \text{ hour}/60 \text{ minutes}) = 2 \text{ hours.}$

$100 \text{ mL} \div 2 \text{ hours} = 50 \text{ mL/hr.}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 44: Anti-inflammatory and Antigout Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. The nurse is reviewing the therapeutic effects of nonsteroidal anti-inflammatory drugs (NSAIDs), which include which effect?
  - a. Anxiolytic
  - b. Sedative
  - c. Antipyretic
  - d. Antimicrobial

ANS: C

NSAIDs have antipyretic effects but not the other effects listed.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient is taking the nonsteroidal anti-inflammatory drug indomethacin (Indocin) as treatment for pericarditis. The nurse will teach the patient to watch for which adverse effect?
  - a. Tachycardia
  - b. Nervousness
  - c. Nausea and vomiting
  - d. Dizziness

ANS: C

Gastrointestinal effects include dyspepsia, heartburn, epigastric distress, nausea, vomiting, anorexia, abdominal pain, and others. See Table 44-2 for the other adverse effects of nonsteroidal anti-inflammatory drugs (NSAIDs). The other options are not adverse effects of NSAIDs.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient with gout has been treated with allopurinol (Zyloprim) for 2 months. The nurse will monitor laboratory results for which therapeutic effect?
  - a. Decreased uric acid levels
  - b. Decreased prothrombin time
  - c. Decreased white blood cell count
  - d. Increased hemoglobin and hematocrit levels

ANS: A

Treatment of gout with allopurinol should result in decreased uric acid levels. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. The nurse is teaching a patient who is taking colchicine for the treatment of gout. Which instruction will the nurse include during the teaching session?
- “Fluids should be restricted while on colchicine therapy.”
  - “Take colchicine with meals.”
  - “The drug will be discontinued when symptoms are reduced.”
  - “Call your doctor if you have increased joint pain or blood in the urine.”

ANS: D

Colchicine may cause renal effects; therefore, the presence of blood in the urine must be reported immediately. In addition, the therapeutic effect should be decreased joint pain, not increased pain. The drug is taken on an empty stomach for better absorption, and fluids should be increased unless contraindicated. Successful treatment depends upon continuing the medication as ordered.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A mother brings her toddler into the emergency department and tells the nurse that she thinks the toddler has eaten an entire bottle of chewable aspirin tablets. The nurse will assess for which most common signs of salicylate intoxication in children?
- Photosensitivity and nervousness
  - Tinnitus and hearing loss
  - Acute gastrointestinal bleeding
  - Hyperventilation and drowsiness

ANS: D

The most common manifestations of chronic salicylate intoxication in children are hyperventilation and CNS effects, such as dizziness, drowsiness, and behavioral changes. The effects in adults are tinnitus and hearing loss.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A 6-year-old child who has chickenpox also has a fever of 102.9° F (39.4° C). The child's mother asks the nurse if she should use aspirin to reduce the fever. What is the best response by the nurse?
- “It's best to wait to see if the fever gets worse.”
  - “You can use the aspirin, but watch for worsening symptoms.”
  - “Acetaminophen (Tylenol) should be used to reduce his fever, not aspirin.”
  - “You can use aspirin, but be sure to follow the instructions on the bottle.”

ANS: C

Aspirin is contraindicated in children with flu-like symptoms because the use of this drug has been strongly associated with Reye syndrome. This is an acute and potentially life-threatening condition involving progressive neurologic deficits that can lead to coma and may also involve liver damage. Acetaminophen is appropriate for this patient. The other responses are incorrect.

DIF: Cognitive Level: Applying (Application)



TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

7. A patient has used enteric aspirin for several years as treatment for osteoarthritis. However, the symptoms are now worse and she is given a prescription for a nonsteroidal anti-inflammatory drug and misoprostol (Cytotec). The patient asks the nurse, "Why am I now taking two pills for arthritis?" What is the nurse's best response?
- "Cytotec will also reduce the symptoms of your arthritis."
  - "Cytotec helps the action of the NSAID so that it will work better."
  - "Cytotec reduces the mucous secretions in the stomach, which reduces gastric irritation."
  - "Cytotec may help to prevent gastric ulcers that may occur in patients taking NSAIDs."

ANS: D

Cytotec inhibits gastric acid secretions and stimulates mucous secretions; it has proved successful in preventing the gastric ulcers that may occur in patients taking NSAIDs.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient who has a history of coronary artery disease has been instructed to take one 81-mg aspirin tablet a day. The patient asks about the purpose of this aspirin. Which response by the nurse is correct?
- "Aspirin is given reduce anxiety."
  - "It helps to reduce inflammation."
  - "Aspirin is given to relieve pain."
  - "It will help to prevent clot formation."

ANS: D

Aspirin can reduce platelet aggregation; low doses of aspirin (81 to 325 mg once daily) are used for thromboprevention. Higher doses are required for pain relief, reduction of inflammation, and reduction of fever. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. During assessment of a patient with osteoarthritis pain, the nurse knows that which condition is a contraindication to the use of nonsteroidal anti-inflammatory drugs (NSAIDs)?
- Renal disease
  - Diabetes mellitus
  - Headaches
  - Rheumatoid arthritis

ANS: A

Contraindications to NSAIDs include known drug allergy and conditions that place a patient at risk for bleeding, such as vitamin K deficiency, and peptic ulcer disease. Patients with documented aspirin allergy must not receive NSAIDs. Other common contraindications are those that apply to most drugs, including severe renal or hepatic disease. The other options are not contraindications.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse notes in a patient's medication history that the patient is taking allopurinol (Zyloprim). Based on this finding, the nurse interprets that the patient has which disorder?
- Rheumatoid arthritis
  - Gout
  - Osteoarthritis
  - Systemic lupus erythematosus

ANS: B

Allopurinol is indicated for the treatment of gout but is not indicated for the other disorders listed.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient calls the clinic to ask about taking a glucosamine-chondroitin supplement for arthritis. The nurse reviews the medication history and notes that there will be a concern for drug interactions if the patient is also taking medications for which disorder?
- Type 2 diabetes mellitus
  - Hypothyroidism
  - Hypertension
  - Angina

ANS: A

The glucosamine in glucosamine-chondroitin supplements may cause an increase in insulin resistance, necessitating the need for higher doses of oral hypoglycemics or insulin.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## MULTIPLE RESPONSE

1. The nurse is reviewing the history of a patient who has a new order for a nonsteroidal anti-inflammatory drug (NSAID) to treat tendonitis. Which conditions are contraindications to the use of NSAIDs? (*Select all that apply.*)
- Vitamin K deficiency
  - Arthralgia
  - Peptic ulcer disease
  - Documented aspirin allergy
  - Pericarditis

ANS: A, C, D

Contraindications to NSAIDs include known drug allergy as well as conditions that place the patient at risk for bleeding, such as vitamin K deficiency and peptic ulcer disease. Patients with documented aspirin allergy should not receive NSAIDs. NSAIDs may be used to treat arthralgia and pericarditis.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. A 75-year-old woman has been given a nonsteroidal anti-inflammatory drug (an NSAID) for the treatment of rheumatoid arthritis. The nurse is reviewing the patient's medication history and notes that which types of medications could have an interaction with the NSAID? (*Select all that apply.*)
  - a. Antibiotics
  - b. Decongestants
  - c. Anticoagulants
  - d. Beta blockers
  - e. Diuretics
  - f. Corticosteroids

ANS: C, E, F

Anticoagulants taken with NSAIDs may cause increased bleeding tendencies because of platelet inhibition and hypoprothrombinemia. NSAIDs taken with diuretics may cause reduced hypotensive and diuretic effects. NSAIDs taken with corticosteroids may cause increased ulcerogenic effects. See Table 44-5. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. There is a new order for Naproxen (Naprosyn) 250 mg PO twice daily. The drug is available as an oral suspension that contains 125 mg/5 mL. Identify how many milliliters the nurse will administer for 1 dose of this medication. \_\_\_\_\_

ANS:

10 mL

125 mg:5 mL :: 250 mg:x mL.

$(125 \times x) = (5 \times 250); 125x = 1250; x = 10 \text{ mL.}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 45: Antineoplastic Drugs Part 1: Cancer Overview and Cell Cycle-Specific Drugs**

**Lilley: Pharmacology and the Nursing Process, 9th Edition**

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### **MULTIPLE CHOICE**

1. One patient has cancer of the bone; another has cancer in the connective tissues of the thigh muscles; a third patient has cancer in the vascular tissues. Which of these is the correct term for these tumors?
  - a. Sarcoma
  - b. Leukemia
  - c. Carcinoma
  - d. Lymphoma

ANS: A

Sarcomas are malignant tumors that arise from connective tissues. These tissues can be found in bone, cartilage, muscle, blood, lymphatic, and vascular tissues. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

2. A patient is receiving her third course of 5-fluorouracil therapy and knows that stomatitis is a potential adverse effect of antineoplastic therapy. What will the nurse teach her about managing this problem?
  - a. "You can take aspirin to prevent stomatitis."
  - b. "Be sure to watch for and report black, tarry stools immediately."
  - c. "You need to increase your intake of foods containing fiber and citric acid."
  - d. "Be sure to examine your mouth daily for bleeding, painful areas, and ulcerations."

ANS: D

The symptoms of stomatitis consist of pain or burning in the mouth, difficulty swallowing, taste changes, viscous saliva, dryness, cracking, and fissures, with or without bleeding mucosa. Teach patients to avoid consuming foods containing citric acid and foods that are hot or spicy or high in fiber. Assessing stools is important but is not related to stomatitis, and aspirin must not be used during this therapy.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. The nurse is developing a plan of care for a patient who is experiencing gastrointestinal adverse effects, including anorexia and nausea, after the first course of antineoplastic therapy. What is an appropriate outcome for this patient when dealing with this problem?
  - a. The patient will eat three balanced meals a day within 2 days.
  - b. The patient will return to normal eating pattern within 4 weeks.
  - c. The patient will maintain normal weight by consuming healthy snacks as tolerated.
  - d. The patient will maintain a diet of small, frequent feedings with nutrition supplements during therapy.

ANS: D

Consuming small, frequent meals with nutritional supplements and maintaining a bland diet help to improve nutrition during antineoplastic therapy.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

4. A patient is receiving high doses of methotrexate and is experiencing severe bone marrow suppression. The nurse expects which intervention to be ordered with this drug to reduce this problem?
- A transfusion of whole blood
  - Leucovorin rescue
  - Therapy with filgrastim (Neupogen)
  - Administration of allopurinol (Zyloprim)

ANS: B

High-dose methotrexate is associated with bone marrow suppression, and it is always given in conjunction with the rescue drug leucovorin, which is an antidote for folic acid antagonists. Basically, leucovorin rescues the healthy cells from methotrexate. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. A patient who has been on methotrexate therapy is experiencing mild pain. The patient is asking for aspirin for the pain. The nurse recognizes that which of these is true in this situation?
- The aspirin will aggravate diarrhea.
  - The aspirin will mask signs of infection.
  - Aspirin can lead to methotrexate toxicity.
  - The aspirin will cause no problems for the patient on methotrexate.

ANS: C

Methotrexate interacts with weak organic acids, such as aspirin, and can lead to toxicity by displacing the methotrexate from protein-binding sites.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is teaching about infection-prevention measures with a patient who is receiving antineoplastic drug therapy. During a Teach-Back session, which statement by the patient indicates the need for further education?
- "I will avoid those who have recently had a vaccination."
  - "I will eat only fresh fruits and raw vegetables."
  - "I will report a sore throat, cough, or low-grade temperature."
  - "It is important for both my family and me to practice good handwashing."

ANS: B

Patients who are neutropenic and susceptible to infections need to adhere to a low-microbe diet by washing fresh fruits and vegetables and making sure foods are well cooked. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

7. The nurse is evaluating the laboratory results of a patient who has received chemotherapy. The loss of which blood cell leads to lack of energy, fatigue, intolerance of activity and hypoxemia?
- White blood cells
  - Red blood cells
  - Platelets
  - Albumin

ANS: B

Bone marrow suppression from antineoplastics affects RBC values, leading to severe anemia. RBCs carry oxygen—attached to the hemoglobin—from the lungs to the rest of the body. RBCs also help carry carbon dioxide back to the lungs for exhalation. Therefore, if RBC counts are low (e.g., with anemia), the body does not get the oxygen it needs, which leads to lack of energy, fatigue, intolerance of activity, shortness of breath, and hypoxemia.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient is receiving irinotecan (Camptosar), along with other antineoplastic drugs, as treatment for ovarian cancer. The nurse will monitor for which potentially life-threatening adverse effect that is associated with this drug?
- Severe stomatitis
  - Bone marrow suppression
  - Delayed-onset cholinergic diarrhea
  - Immediate and severe nausea and vomiting

ANS: C

In addition to producing hematologic adverse effects, irinotecan has been associated with severe diarrhea, known as *cholinergic diarrhea*, which may occur during infusions. Delayed diarrhea may occur 2 to 10 days after infusion of irinotecan. It is recommended that this condition can be treated with atropine unless use of that drug is strongly contraindicated. This diarrhea can be severe and even life threatening.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is monitoring a patient who has severe bone marrow suppression following antineoplastic drug therapy. Which is considered a principal early sign of infection?
- Fever
  - Diaphoresis

- c. Tachycardia
- d. Elevated white blood cell count

ANS: A

Fever and/or chills may be the first sign of an oncoming infection. Elevated white blood cell count will not occur because of the bone marrow suppression. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

10. A patient, diagnosed with lymphoma, has an allergy to one of the proposed chemotherapy drugs. The tumor has not responded to other types of treatment. The nurse expects the oncologist to follow which course of treatment?
- a. The physician will choose another drug to use.
  - b. The chemotherapy will be given along with supportive measures to treat a possible allergic reaction.
  - c. The patient will receive reduced doses of chemotherapy for a longer period of time.
  - d. The chemotherapy cannot be given because of the patient's allergy.

ANS: B

Even if a patient has a known allergic reaction to a given antineoplastic medication, the urgency of treating the patient's cancer may still necessitate administering the medication and then treating any allergic symptoms with supportive medications, such as antihistamines, corticosteroids, and acetaminophen.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. During treatment of a patient who has brain cancer, the nurse hears the oncologist mention that the patient has reached the "nadir." The nurse knows that this term means which of these?
- a. The lowest level of neutrophils reached during therapy.
  - b. The highest level of neutrophils reached during therapy.
  - c. The point at which the adverse effects of chemotherapy will stop.
  - d. The point at which the cytotoxic action against cancer cells is the highest.

ANS: A

The lowest neutrophil count reached after a course of chemotherapy is known as the nadir. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **MULTIPLE RESPONSE**

1. Methotrexate is ordered for a patient with a malignant tumor, and the nurse is providing education about self-care after the chemotherapy is given. Which statements by the nurse are appropriate for the patient receiving methotrexate? (*Select all that apply.*)
  - a. Report unusual bleeding or bruising.
  - b. Hair loss is not expected with this drug.
  - c. Prepare for hair loss.
  - d. Avoid areas with large crowds or gatherings.
  - e. Avoid foods that are too hot or too cold or rough in texture.
  - f. Restrict fluid intake to reduce nausea and vomiting.

ANS: A, C, D, E

Counsel patients who are taking methotrexate to expect hair loss and to report any unusual bleeding or bruising. Because of the possibility of infection, avoid areas with large crowds or gatherings. Foods that are too hot or too cold or rough in texture may be irritating to the oral mucosa. Fluid intake is to be encouraged to prevent dehydration.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. When giving chemotherapy as cancer treatment, the nurse recognizes that toxicity to rapidly growing normal cells also occurs. Which rapidly growing normal cells are also harmed by chemotherapy? (*Select all that apply.*)
  - a. Bone marrow cells
  - b. Retinal cells
  - c. Hair follicle cells
  - d. Nerve myelin cells
  - e. Gastrointestinal (GI) mucous membrane cells

ANS: A, C, E

Chemotherapy toxicities generally stem from the fact that chemotherapy drugs affect rapidly dividing cells—both harmful cancer cells and healthy, normal cells. Three types of rapidly dividing human cells are the cells of hair follicles, GI tract cells, and bone marrow cells. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## COMPLETION

1. A patient is to receive a daily dose of fludarabine (Fludara), 25 mg/m<sup>2</sup>/day for 5 consecutive days. Each dose is diluted in a 125-mL bag of normal saline and is to infuse over 30 minutes. The nurse will set the infusion pump to what rate in milliliters per hour?

ANS:

250 mL/hr

30 minutes = 0.5 hour.

125 mL:0.5 hour :: x mL:1 hour.



$(125 \times 1) = (0.5 \times x)$ ;  $125 = 0.5x$ ,  $x = 250$ ; set the pump to infuse at 250 mL/hr.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 46: Antineoplastic Drugs Part 2: Cell Cycle–Nonspecific Drugs and Miscellaneous Drugs**

**Lilley: Pharmacology and the Nursing Process, 9th Edition**

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### **MULTIPLE CHOICE**

1. A patient is receiving doxorubicin (Adriamycin) as part of treatment for ovarian cancer. Which of these is a possible adverse effect of doxorubicin?
  - a. Cardiotoxicity
  - b. Pulmonary toxicity
  - c. Neurotoxicity
  - d. Hyperuricemia

ANS: A

Decreased cardiac output related to the adverse effect of cardiotoxicity is a possible adverse effect related to doxorubicin because adverse effects of doxorubicin include liver and cardiovascular toxicities. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Human Needs Statement

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

2. When giving cisplatin (Platinol-AQ), the nurse is aware that adverse effect of this drug is which condition?
  - a. Alopecia
  - b. Kidney damage
  - c. Cardiotoxicity
  - d. Stomatitis

ANS: B

Cisplatin may cause nephrotoxicity, and the patient's renal function must be monitored closely while on this drug. Ensuring hydration will help to prevent nephrotoxicity.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The nurse is teaching a class about the various chemotherapy drugs. Which of these statements explains why alkylating drugs are also called "cell cycle–nonspecific drugs"?
  - a. They are cytotoxic during a specific cell cycle.
  - b. They are cytotoxic in any phase of the cell cycle.
  - c. They are effective against several types of neoplasms.
  - d. They are more highly differentiated than cell cycle–specific drugs.

ANS: B

Cell cycle–nonspecific drugs kill cancer cells during any phase of the growth cycle, whereas cell cycle–specific drugs kill cancer cells during specific phases of the cell growth cycle. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. What is the nurse's priority action if extravasation of an antineoplastic drug occurs during intravenous (IV) administration?
- Reduce the infusion rate.
  - Discontinue the IV, and apply warm compresses.
  - Stop the infusion immediately, but leave the IV catheter in place.
  - Change the infusion to normal saline, and inject the area with hydrocortisone.

ANS: C

If extravasation is suspected, administration of the drug must be stopped immediately but the IV catheter left in place and the appropriate antidote instilled through the existing IV tube, after which the needle may be removed. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

5. A patient is receiving a third session of chemotherapy with daunorubicin (Cerubidine). The nurse will assess the patient for which signs of a potential severe toxic effect of this drug?
- Tinnitus and hearing loss
  - Numbness and tingling in the fingers
  - A weight gain of 2 pounds or more in 24 hours
  - Decreased blood urea nitrogen and creatinine levels

ANS: C

Cardiac toxicity may occur, so frequent checking of heart and breath sounds is necessary and daily weights need to be recorded (with reporting of an increase of 2 pounds or more in 24 hours or 5 pounds or more in 1 week).

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is hanging a new infusion bag of a chemotherapy drug, but the tubing becomes disconnected and a small amount of the solution drips onto the floor. Which action by the nurse is appropriate?
- Let it dry, and then mop the floor.
  - Wipe the area with a disposable paper towel.
  - Use a spill kit to clean the area.
  - Ask the housekeeping department to clean the floor.

ANS: C

Special spill kits are required to clean up even the smallest chemotherapy spills. These precautions are necessary to protect the health care provider from the cytotoxic effects of these drugs.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

7. Just before the second course of chemotherapy, the laboratory calls to report that the patient's neutrophil count is 450 cells/mm<sup>3</sup>. The nurse expects that the oncologist will follow which course of treatment?
- Chemotherapy will continue as scheduled.
  - Chemotherapy will resume with a lowered dosage.
  - Chemotherapy will resume after a transfusion of neutrophils.
  - Chemotherapy will be withheld until the neutrophil count returns toward normal levels.

ANS: D

The normal range for neutrophils is above 1500 cells/mm<sup>3</sup>. If neutrophils are decreased to levels of less than 500 cells/mm<sup>3</sup> (neutropenia), there is risk for severe infection. Chemotherapy will be held until the count returns toward normal levels.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A female patient is receiving palliative therapy with androgen hormones as part of treatment for inoperable breast cancer. The nurse will discuss with the patient which potential body image changes that may occur as adverse effects?
- Hirsutism and acne
  - Weight gain
  - Flushing and hot flashes
  - Alopecia and body odor

ANS: A

Androgens used for cancer treatment, such as fluoxymesterone and testolactone, can cause menstrual irregularities, virilization of female, gynecomastia, hirsutism, acne, anxiety, headache, and nausea. The patient needs to be told of these effects before therapy begins. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. During chemotherapy, a patient develops severe diarrhea caused by a vasoactive intestinal peptide-secreting tumor (VIPoma). The nurse expects to administer which drug for this problem?
- Dexrazoxane (Zinecard)
  - Allopurinol (Zyloprim)
  - Octreotide (Sandostatin)
  - Bismuth subsalicylate (Pepto-Bismol)

ANS: C

Octreotide (Sandostatin) is used for the management of a cancer-related condition called *carcinoid crisis* and treatment of the severe diarrhea caused by vasoactive intestinal peptide-secreting tumors (VIPomas). The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

**MULTIPLE RESPONSE**

1. The nurse is assessing a patient who is receiving chemotherapy with an alkylating drug. Which assessment findings would be considered indications of an oncologic emergency? (*Select all that apply.*)
  - a. Dry, “scratchy,” or “swollen” throat
  - b. Loss of hair
  - c. Decreased red blood cell count
  - d. White patches in the mouth or throat
  - e. Temperature of 100.7° F (38.2° C)
  - f. Decreased urine output

ANS: A, D, E, F

Indications of an oncologic emergency include fever and/or chills with a temperature higher than 100.5° F (38.1° C); new sores or white patches in the mouth or throat; changes in bladder function or patterns; dry, burning, “scratchy,” or “swollen” throat; and other signs and symptoms (see Box 46-4). The prescriber must be contacted immediately if any of the listed signs or symptoms occur. Loss of hair and decreased red blood cell count (a result of bone marrow suppression) are expected effects of chemotherapy.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. When a patient is receiving cisplatin (Platinol-AQ) chemotherapy, the nurse will monitor for which adverse effects? (*Select all that apply.*)
  - a. Tinnitus
  - b. Heart failure
  - c. Hearing loss
  - d. Elevated blood urea nitrogen and creatinine levels
  - e. Numbness or tingling in the extremities
  - f. Elevated glucose and ketone levels

ANS: A, C, D, E

Cisplatin can cause nephrotoxicity, ototoxicity, and peripheral neuropathy. Nephrotoxicity is manifested by rising blood urea nitrogen and creatinine levels; ototoxicity is manifested by tinnitus, hearing loss, and dizziness; peripheral neuropathy is manifested by numbness or tingling of the extremities.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

**COMPLETION**

1. A patient will be receiving mitoxantrone (Novantrone), 12 mg/m<sup>2</sup>/day every 3 weeks, as part of treatment for prostate cancer. Each dose is mixed into a 50-mL bag of D<sub>5</sub>W and needs to infuse over 15 minutes. The infusion pump delivers the dose at milliliters per hour. Identify the nurse will set the pump to infuse at what rate. \_\_\_\_\_

ANS:

200 mL/hr

15 minutes = 0.25 hour.

50 mL:0.25 hour ::  $x$  mL:1 hour.

$(50 \times 1) = (0.25 \times x)$ ;  $50 = 0.25x$ ;  $x = 200$  mL/hr.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 47: Biologic Response–Modifying and Antirheumatic Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. When monitoring a patient's response to interferon therapy, the nurse notes that the major dose-limiting factor for interferon therapy is which condition?
  - a. Diarrhea
  - b. Fatigue
  - c. Anxiety
  - d. Nausea and vomiting

ANS: B

Patients who receive interferon therapy may experience flu-like symptoms: fever, chills, headache, malaise, myalgia, and fatigue. Fatigue is the major dose-limiting factor for interferon therapy. Patients taking high dosages become so exhausted that they are commonly confined to bed.

DIF: Cognitive Level: Understanding (Comprehension)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient asks about his cancer treatment with monoclonal antibodies. The nurse tells him that which is the major advantage of treating certain cancers with monoclonal antibodies?
  - a. They will help the patient improve more quickly than will other antineoplastic drugs.
  - b. They are more effective against metastatic tumors.
  - c. Monoclonal antibodies target certain tumor cells and yet bypass normal cells.
  - d. There are fewer incidences of opportunistic infections with monoclonal antibodies.

ANS: C

Monoclonal antibodies can target cancer cells specifically and have minimal effects on healthy cells, unlike conventional cancer treatments. As a result, there are fewer adverse effects when compared to traditional antineoplastic therapy. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. During a patient's therapy with interleukins, the nurse monitors the patient for capillary leak syndrome. Which assessment finding, if present, would indicate this problem?
  - a. Bradycardia
  - b. A dry cough
  - c. Bruising on the skin
  - d. A sudden, 15-pound weight gain

ANS: D

With capillary leak syndrome, the capillaries lose their ability to retain vital colloids, and these substances migrate into the surrounding tissues, resulting in massive fluid retention. As a result, heart failure, myocardial infarction, and dysrhythmias may occur. The other options do not reflect capillary leak syndrome.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient who has received chemotherapy has a critically low platelet count. The nurse expects which drug or drug class to be used to stimulate platelet cell production?
- Filgrastim (Neupogen)
  - Interferons
  - Oprelvekin (Neumega)
  - Epoetin alfa (Epogen)

ANS: C

Oprelvekin (Neumega) stimulates bone marrow cells, specifically megakaryocytes, which eventually form platelets. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient who has received chemotherapy has a steadily decreasing white blood cell count. The chemotherapy will end on Tuesday afternoon. The oncologist has mentioned that a colony-stimulating factor will be started soon. The nurse knows that the appropriate time to start this medication is when?
- While the patient is still receiving chemotherapy
  - Two hours after the chemotherapy ends
  - Wednesday afternoon, 24 hours after the chemotherapy ends
  - In 2 to 4 days, after the white blood cells have reached their nadir

ANS: C

Drugs that are given to enhance the activity of bone marrow cells interfere directly with the action of myelosuppressive cancer therapy. For this reason, therapy with colony-stimulating factors begins 24 hours after the chemotherapy has been completed.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient has an order for the monoclonal antibody adalimumab (Humira). The nurse notes that the patient does not have a history of cancer. What is another possible reason for administering this drug?
- Severe anemia
  - Rheumatoid arthritis
  - Thrombocytopenia
  - Osteoporosis

ANS: B



Monoclonal antibodies are used for the treatment of cancer, rheumatoid arthritis and other inflammatory diseases, multiple sclerosis, and organ transplantation.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. During interleukin drug therapy, a patient is showing signs of severe fluid retention, with increasing dyspnea and severe peripheral edema. The next dose of the interleukin is due now. Which action will the nurse take next?
- Hold the drug, and notify the prescriber.
  - Give the drug, and notify the prescriber.
  - Give the drug along with acetaminophen and diphenhydramine (Benadryl).
  - Monitor the patient for 2 hours, and then give the drug if the patient's condition improves.

ANS: A

The fluid retention that may occur with interleukin therapy is reversible; if therapy is stopped, the prescriber must be notified. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is administering an interferon and will implement which intervention?
- Giving the medication with meals
  - Monitoring daily weights
  - Limiting fluids while the patient is taking this medication
  - Rotating injection sites

ANS: D

Interferon is given parenterally (not orally), and injection sites need to be rotated. Fluids need to be increased during interferon therapy. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. Abatacept (Orencia) is prescribed for a patient with severe rheumatoid arthritis. The nurse checks the patient's medical history, knowing that this medication would need to be used cautiously if which condition is present?
- Coronary artery disease
  - Chronic obstructive pulmonary disease
  - Diabetes mellitus
  - Hypertension

ANS: B

Abatacept must be used cautiously in patients with recurrent infections or chronic obstructive pulmonary disease. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. Aldesleukin [IL-2] (Proleukin) is prescribed for a patient. The nurse reviews the patient's medication list and would note a potential drug interaction if which drug class is also ordered?
- Anticoagulants
  - Antiepileptic drugs
  - Oral hypoglycemic drugs
  - Antihypertensive drugs

ANS: D

Aldesleukin, when given with antihypertensives, can produce additive hypotensive effects. The other responses are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

### MULTIPLE RESPONSE

1. During therapy with hematopoietic drugs, the nurse will monitor the patient for which adverse effects? (*Select all that apply.*)
- Hypotension
  - Edema
  - Diarrhea
  - Black, tarry stools
  - Nausea and vomiting
  - Headache

ANS: B, C, E, F

Potential adverse effects of hematopoietic drugs include edema, anorexia, nausea, vomiting, diarrhea, dyspnea, fever, and headache. See Table 47-1 for a complete list. The other options are not adverse effects of these drugs.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A patient is to receive filgrastim (Neupogen) 5 mcg/kg/day. The patient weighs 198 pounds. Identify how many micrograms of medication this patient will receive each day.
- \_\_\_\_\_

ANS:

450 mcg

Convert pounds to kilograms:  $198 \div 2.2 = 90$  kg.

Calculate mcg/day for this patient:  $5 \text{ mcg/kg/day} \times 90 \text{ kg} = 450 \text{ mcg/day}$ .

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient will be receiving aldesleukin [IL-2] (Proleukin), 600,000 IU/kg every 8 hours for 14 doses. The patient weighs 220 pounds. Identify how many IU of medication this patient will receive per dose. \_\_\_\_\_

ANS:

60 million (60,000,000) IU

Convert pounds to kilograms:  $220 \div 2.2 = 100$  kg.

Calculate IU/kg for this patient:  $600,000 \text{ IU/kg} \times 100 \text{ kg} = 60,000,000 \text{ IU/dose}$ .

DIF: Cognitive Level: Applying (Application)

REF: N/A

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## **Chapter 48: Immunosuppressant Drugs**

### **Lilley: Pharmacology and the Nursing Process, 9th Edition**

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#### **MULTIPLE CHOICE**

1. A patient must be treated immediately for acute organ transplant rejection. The nurse anticipates that muromonab-CD3 (Orthoclone OKT3) will be ordered. What is the priority assessment before beginning drug therapy with muromonab-CD3?
  - a. Serum potassium level
  - b. Fluid volume status
  - c. Electrocardiogram
  - d. Blood glucose level

ANS: B

Assess fluid volume status because muromonab-CD3 is contraindicated in the presence of fluid overload. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. A patient is about to undergo a kidney transplant. She will be given an immunosuppressant drug before, during, and after surgery to minimize organ rejection. During the preoperative teaching session, which information will the nurse include about the medication therapy?
  - a. Several days before the surgery, the medication will be administered orally.
  - b. The oral doses need to be taken 1 hour before meals to maximize absorption.
  - c. Mix the oral liquid with juice in a disposable Styrofoam cup just before administration.
  - d. Intramuscular injections of the medication will be needed for several days preceding surgery.

ANS: A

Several days before transplant surgery, immunosuppressant drugs need to be taken by the oral route, if possible, to avoid intramuscular injections and the risk for infection caused by the injections. Avoid Styrofoam containers because the medication may adhere to the side of the container. These medications are taken with food to minimize gastrointestinal upset.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. A patient has an order for cyclosporine (Sandimmune). The nurse finds that cyclosporine-modified product (Neoral) is available in the automated medication cabinet. Which action by the nurse is correct?
  - a. Hold the dose until the prescriber makes rounds.
  - b. Give the cyclosporine-modified drug.
  - c. Double-check the order, and then give the cyclosporine-modified drug.
  - d. Notify the pharmacy to obtain the Sandimmune form of the drug.

ANS: D

The nurse must double-check the formulation before giving cyclosporine.

Cyclosporine-modified products (such as Neoral or Gengraf) are interchangeable with each other but are *not* interchangeable with Sandimmune. In this case, the nurse must obtain the Sandimmune form of the drug from the pharmacy. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. The nurse is preparing to administer an injection of monoclonal antibodies. Which additional drug will the nurse administer to minimize adverse reactions to the monoclonal antibodies?
- A nonsteroidal anti-inflammatory drug
  - A benzodiazepine
  - An opioid pain reliever
  - A corticosteroid

ANS: D

The monoclonal antibodies such as basiliximab and daclizumab have a tendency to cause the allergy-like reaction known as *cytokine release syndrome*, which can be severe and even involve anaphylaxis. In an effort to avoid or alleviate this problem, it is recommended that an injection of a corticosteroid, such as methylprednisolone, be administered before the injection of monoclonal antibodies.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. When administering cyclosporine, the nurse notes that allopurinol is also ordered for the patient. What is a potential result of this drug interaction?
- Reduced adverse effects of the cyclosporine
  - Increased levels of cyclosporine and toxicity
  - Reduced uric acid levels
  - Reduced nephrotoxic effects of cyclosporine

ANS: B

The allopurinol may cause increased levels of cyclosporine, and toxicity may result. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. The nurse is monitoring a patient who is receiving muromonab-CD3 (Orthoclone OKT3) after an organ transplant. Which effect is possible with muromonab-CD3 therapy?
- Chest pain
  - Hypotension
  - Confusion
  - Dysuria

ANS: A

Muromonab-CD3 may cause chest pain, fever, chills, tremor, gastrointestinal disturbances (nausea, vomiting, diarrhea), and other effects as noted in Table 48-2. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. When monitoring a patient who is on immunosuppressant therapy with azathioprine (Imuran), the nurse will monitor which laboratory results?
- Serum potassium levels
  - White blood cell (leukocyte) count
  - Red blood cell count
  - Serum albumin levels

ANS: B

Leukopenia is a potential adverse effect of azathioprine therapy, so white blood cells need to be monitored. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. A patient with multiple sclerosis will be starting therapy with an immunosuppressant drug. The nurse expects that which drug will be used?
- Azathioprine (Imuran)
  - Glatiramer acetate (Copaxone)
  - Daclizumab (Zenapax)
  - Sirolimus (Rapamune)

ANS: B

Glatiramer acetate and fingolimod are the only immunosuppressants currently indicated for reduction of the frequency of relapses (exacerbations) in a type of multiple sclerosis known as relapsing-remitting multiple sclerosis.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. Cyclosporine is prescribed for a patient who had an organ transplant. The nurse will monitor the patient for which common adverse effect?
- Nausea and vomiting
  - Fever and tremors
  - Agitation
  - Hypertension

ANS: D

Moderate hypertension may occur in patients taking cyclosporine. The other options are potential adverse effects of other immunosuppressant drugs.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Evaluation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient who has had a recent organ transplant is taking sirolimus as part of the immunosuppressant therapy. Today, the patient realized that a dose was missed, and it is now time for the next dose. Which action is appropriate?
- Just take the dose that is now due, not both doses.
  - Take the missed dose of sirolimus along with the next dose that is due.
  - Take half of the missed dose along with the current dose that is due.
  - Contact the transplant physician for instructions.

ANS: D

If a dose of sirolimus is missed, it should be taken as soon as the patient remembers, unless it is close to the time that the next dose is due. In this case, the patient must contact the transplant physician.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

### MULTIPLE RESPONSE

1. The nurse follows which procedures when giving intravenous (IV) cyclosporine? (*Select all that apply.*)
- Administering it as a single IV bolus injection to minimize adverse effects
  - Using an infusion pump to administer this medication
  - Monitoring the patient for potential delayed adverse effects, which may be severe
  - Monitoring the patient closely for the first 30 minutes for severe adverse effects
  - Checking blood levels periodically during cyclosporine therapy
  - Performing frequent oral care during therapy

ANS: B, D, E, F

Cyclosporine is infused intravenously with an infusion pump, not as an IV bolus. Monitor the patient closely for the first 30 minutes for adverse effects, especially for allergic reactions, and monitor blood levels periodically to ensure therapeutic, not toxic, levels of the medication. Perform oral hygiene frequently to prevent dry mouth and subsequent infections.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient has started azathioprine (Imuran) therapy as part of renal transplant surgery. The nurse will monitor for which expected adverse effect of azathioprine therapy? (*Select all that apply.*)
- Tremors
  - Leukopenia
  - Diarrhea
  - Thrombocytopenia
  - Hepatotoxicity
  - Fluid retention

ANS: B, D, E

Leukopenia is an expected adverse effect of azathioprine therapy, as are thrombocytopenia and hepatotoxicity. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient will be on a tacrolimus (Prograf) infusion after receiving a liver transplant. The order reads, "Give 0.03 mg/kg/day as a continuous IV infusion." The patient weighs 159 pounds, and the medication injection solution is available in a 5-mg/mL strength. Identify how many milliliters will the nurse draw up for this infusion. (record answer using two decimal places) \_\_\_\_\_

ANS:

0.43 mL

Convert pounds to kilograms:  $159 \div 2.2 = 72.27$  kg.

Calculate the mg/kg/day dosage in milligrams:

$0.03 \text{ mg/kg/day} \times 72.27 \text{ kg} = 2.1681$ , rounded to 2.17 mg.

Calculate the milliliters to administer:

$5 \text{ mg}:1 \text{ mL} :: 2.17 \text{ mg}:x \text{ mL}$ .

$(5 \times x) = (1 \times 2.17)$ ;  $5x = 2.17$ ;  $x = 0.434$  rounded to 0.43 mL.

DIF: Cognitive Level: Applying (Application)

REF: N/A

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies



## Chapter 49: Immunizing Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. Two patients arrive at the clinic; one is a young boy with sickle cell anemia, and another is a 57-year-old woman with early stages of Hodgkin's disease. The nurse notices that both patients need the same vaccine. What vaccine would that be?
  - a. Varicella virus vaccine (Varivax)
  - b. Herpes zoster vaccine (Zostavax)
  - c. Hepatitis B virus vaccine, inactivated (Recombivax HB)
  - d. *Haemophilus influenzae* type b (Hib) vaccine

ANS: D

*H. influenzae* type b conjugate vaccine is usually given to patients with one of these disorders: sickle cell anemia, an immunodeficiency syndrome, Hodgkin's disease, and others. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is reviewing principles of immunization. What type of immunization occurs when antibodies pass from mother to infant during breastfeeding or through the placenta during pregnancy?
  - a. Artificial active immunization
  - b. Attenuating immunization
  - c. Natural passive immunization
  - d. Artificial passive immunization

ANS: C

Natural passive immunization occurs when antibodies are transferred from the mother to her infant in breast milk or through the bloodstream via the placenta during pregnancy. Artificial active immunization causes an antigen–antibody response and stimulates the body's defenses to resist any subsequent exposures. Passive immunization is conferred by bypassing the host's immune system and injecting the person with antiserum or concentrated antibodies obtained from other humans or animals; this gives the host direct means of fighting off an invading microorganism. The host's immune system therefore does not have to manufacture these antibodies.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A 45-year-old man has received a series of immunizing drugs in preparation for a trip to a developing country. Within hours, his wife brings him to the emergency department because he has developed edema of the face, tongue, and throat and is having trouble breathing. The nurse suspects that, based on the patient's history and symptoms, he is experiencing which condition?
  - a. Serum sickness

- b. Cross-sensitivity
- c. Thrombocytopenic purpura
- d. Adenopathy

ANS: A

Serum sickness sometimes occurs after repeated injections of equine (horse)-made immunizing drugs and is characterized by edema of the face, tongue, and throat; rash; urticaria; fever; flushing; dyspnea; and other symptoms.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A 12-month-old infant has received an MMR II (measles, mumps, and rubella virus vaccine), and her mother calls the clinic that afternoon to ask about helping her fussy infant to “feel better.” What will the nurse suggest?
- a. Apply an ice pack to the injection site.
  - b. Apply warm compresses to the injection site.
  - c. Observe the site for further swelling and redness.
  - d. Bring the infant in to the emergency department for an immediate examination.

ANS: B

Applying warm compresses to the injection site and using acetaminophen (*not* aspirin, which carries the risk for Reye’s syndrome) should help to relieve the discomfort. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

5. A sanitation worker has experienced a needle stick by a contaminated needle that was placed in a trash can. The employee health nurse expects that which drug will be used to provide passive immunity to hepatitis B infection?
- a. *Haemophilus influenzae* type b (Hib)
  - b. Varicella virus vaccine (Varivax)
  - c. Hepatitis B immunoglobulin (BayHep B)
  - d. Hepatitis B virus vaccine (inactivated) (Recombivax HB)

ANS: C

Recombivax HB promotes active immunity to hepatitis B infection in people who are considered to be at high risk for potential exposure to the virus, whereas hepatitis B immunoglobulin provides passive immunity for the prophylaxis and postexposure treatment of people exposed to hepatitis B virus or HBs-Ag–positive materials, such as blood, plasma, or serum. Hib and Varivax vaccines are not appropriate for this situation.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Health Promotion and Maintenance

6. A nurse is working in an immunization clinic. A new colleague asks, “When is the first dose of the diphtheria, tetanus, and acellular pertussis (DtaP, Daptacel) given?” The nurse knows that this series is started at what age?
- a. At birth

- b. 6 weeks
- c. 3 months
- d. 1 year

ANS: B

The first dose of the series of three injections is given at 6 weeks of age. The other options are incorrect.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Assessment

MSC: NCLEX: Health Promotion and Maintenance

7. A patient is in the urgent care center after experiencing a black widow spider bite. The nurse prepares to give which product to treat this injury?
- a. Live vaccine
  - b. Antivenins or antisera
  - c. Tetanus immune globulin
  - d. Active immunizing drug

ANS: B

Antivenins, also known as *antisera*, are used to prevent or minimize the effects of poisoning by poisonous snakes and spiders. They provide the person who has been bitten with the substance needed to overcome the effects of the venom.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A 30-year-old woman is in the clinic for her yearly gynecologic exam and asks the nurse about the “new vaccine that prevents HPV.” She wants to receive the papillomavirus vaccine (Gardasil). Which response by the nurse is most appropriate?
- a. “For women, the recommended age for this vaccine is 13 to 26 years of age.”
  - b. “We will need to make sure you are not pregnant first.”
  - c. “There will be a total of three injections.”
  - d. “I will check with your health care provider and then get the first dose of the vaccine ready.”

ANS: A

It is important to make sure that a patient receiving Gardasil is not pregnant and that the patient knows that there are a total of three injections, but this particular patient is too old to receive the vaccine. The guidelines recommend the vaccine for women 13 to 26 years of age.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Health Promotion and Maintenance

### MULTIPLE RESPONSE

1. The nurse is reviewing the health history of a new patient who may need immunizations. Active immunizations are usually contraindicated in which patients? (*Select all that apply.*)
- a. Patients with a febrile illness

- b. Children younger than 1 year of age
- c. Elderly patients
- d. Patients who are immunosuppressed
- e. Those receiving cancer chemotherapy

ANS: A, D, E

Contraindications to the administration of immunizing drugs include a history of reactions to or serious adverse effects resulting from the drugs, and patients who are already immunosuppressed (patients with AIDS and patients receiving chemotherapy).

Immunizations are best deferred until after a febrile illness. Children younger than 1 year of age and the elderly may receive immunizing drugs.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. The nurse is reviewing the information about the herpes zoster vaccine (Zostavax) before administering the dose. Which statements about the vaccine are true? (*Select all that apply.*)
- a. It is a one-time vaccine.
  - b. The vaccine is recommended for patients 50 years of age and older.
  - c. The vaccine is given to children to prevent chickenpox.
  - d. It is used to prevent postherpetic neuralgia.
  - e. It is contraindicated in patients who have already had shingles.
  - f. The vaccine is used to prevent reactivation of the zoster virus that causes shingles.

ANS: A, B, F

Zoster vaccine (Zostavax) is used to prevent shingles; it also prevents reactivation of the zoster virus that causes shingles. It is given to patients 50 years of age and older, and it is a one-time vaccine. It is not given to prevent chickenpox or given to children. It does *not* prevent postherpetic neuralgia, and it can be given to patients who have already had shingles.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

## COMPLETION

1. A health care worker will be receiving hepatitis B immunoglobulin (BayHep B), 0.06 mL/kg IM now and repeated in 30 days as part of hepatitis B prophylaxis after a needle stick accident. The patient weighs 264 pounds. Identify how many milliliters the patient will receive for each dose. (record answer using one decimal place) \_\_\_\_\_

ANS:

7.2 mL

Convert pounds to kilograms:  $264 \div 2.2 = 120$  kg.

Calculate mL/kg:  $0.06 \text{ mL/kg/dose} \times 120 \text{ kg} = 7.2 \text{ mL/dose}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation



## Chapter 50: Acid-Controlling Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient is receiving an aluminum-containing antacid. The nurse will inform the patient to watch for which possible adverse effect?
  - a. Diarrhea
  - b. Constipation
  - c. Nausea
  - d. Abdominal cramping

ANS: B

Aluminum-based antacids have a constipating effect as well as an acid-neutralizing capacity. The other options are incorrect.

DIF: Cognitive Level: Remembering (Knowledge)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. When reviewing the health history of a patient who will be receiving antacids, the nurse recalls that antacids containing magnesium need to be used cautiously in patients with which condition?
  - a. Peptic ulcer disease
  - b. Renal failure
  - c. Hypertension
  - d. Heart failure

ANS: B

Both calcium- and magnesium-based antacids are more likely to accumulate to toxic levels in patients with renal disease and are commonly avoided in this patient group. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. The nurse is reviewing the medication orders for a patient who will be taking an H<sub>2</sub> antagonist. Which drug may have an interaction if taken along with the H<sub>2</sub> antagonist?
  - a. Ibuprofen
  - b. Ranitidine
  - c. Tetracycline
  - d. Ketoconazole

ANS: D

All H<sub>2</sub> receptor antagonists may inhibit the absorption of certain drugs, such as the antifungal ketoconazole, that require an acidic gastrointestinal environment for gastric absorption. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient who has been taking cimetidine (Tagamet) for hyperacidity calls the clinic to say that the medication has not been effective. The nurse reviews his history and notes that which factor may be influencing the effectiveness of this drug?
- He takes the cimetidine with meals.
  - He smokes two packs of cigarettes a day.
  - He drinks a glass of water with each dose.
  - He takes an antacid 3 hours after the cimetidine dose.

ANS: B

Smoking may impair the absorption of H<sub>2</sub> antagonists. The other factors are correct interventions for this medication.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A patient is taking omeprazole (Prilosec) for the treatment of gastroesophageal reflux disease (GERD). The nurse will include which statement in the teaching plan about this medication?
- “Take this medication once a day after breakfast.”
  - “You will be on this medication for only 2 weeks for treatment of the reflux disease.”
  - “The medication may be dissolved in a liquid for better absorption.”
  - “The entire capsule must be taken whole, not crushed, chewed, or opened.”

ANS: D

Omeprazole needs to be taken before meals, and an entire capsule must be taken whole, not crushed, chewed, opened, or dissolved in liquid when treating GERD. This medication is used on a long-term basis to maintain healing.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient has excessive and painful gas. The nurse checks the patient's medication orders and prepares to administer which drug for this problem?
- Famotidine (Pepcid)
  - Aluminum hydroxide and magnesium hydroxide (Maalox or Mylanta)
  - Calcium carbonate (Tums)
  - Simethicone (Mylicon)

ANS: D

Simethicone alters the elasticity of mucus-coated bubbles, causing them to break, and is an over-the-counter antifatulent. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A 75-year-old woman comes into the clinic and states she has had muscle twitching, nausea, and headache. She tells the nurse that she has been taking sodium bicarbonate five or six times a day for the past 3 weeks. The nurse will assess for which potential problem that may occur with overuse of sodium bicarbonate?
- Constipation
  - Metabolic acidosis
  - Metabolic alkalosis
  - Excessive gastric mucus

ANS: C

Excessive use of sodium bicarbonate may lead to systemic alkalosis. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. A patient will be taking a 2-week course of combination therapy with omeprazole (Prilosec) and another drug for a peptic ulcer caused by *Helicobacter pylori*. The nurse expects a drug from which class to be ordered with the omeprazole?
- Antibiotic
  - Nonsteroidal anti-inflammatory drug
  - Antacid
  - Antiemetic

ANS: A

The antibiotic clarithromycin is active against *H. pylori* and is used in combination with omeprazole to eradicate the bacteria. First-line therapy against *H. pylori* includes a 10- to 14-day course of a proton pump inhibitor such as omeprazole, plus the antibiotics clarithromycin and either amoxicillin or metronidazole, or a combination of a proton pump inhibitor, bismuth subsalicylate, and the antibiotics tetracycline and metronidazole. Many different combinations are used.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient is asking advice about which over-the-counter antacid is considered the most safe to use for heartburn. The nurse explains that the reason that calcium antacids are not used as frequently as other antacids is for which of these reasons?
- Their use may result in kidney stones.
  - They cause decreased gastric acid production.
  - They cause severe diarrhea.
  - Their use may result in fluid retention and edema.

ANS: A

Calcium antacids are not used as frequently as other antacids because their use may lead to the development of kidney stones; they also cause increased gastric acid production. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:



MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. At 0900, the nurse is about to give morning medications, and the patient has asked for a dose of antacid for severe heartburn. Which schedule for the antacid and medications is correct?
- Give both the antacid and medications at 0900.
  - Give the antacid at 0900, and then the medications at 0930.
  - Give the medications at 0900, and then the antacid at 1000.
  - Give the medications at 0900, and then the antacid at 0915.

ANS: C

Medications are not to be taken, unless prescribed, within 1 to 2 hours of taking an antacid because of the impact on the absorption of many medications in the stomach.

DIF: Cognitive Level: Analyzing (Analysis)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. During an admission assessment, the patient tells the nurse that he has been self-treating his heartburn for 1 year with over-the-counter Prilosec OTC (omeprazole, a proton pump inhibitor). The nurse is aware that this self-treatment may have which result?
- No serious consequences
  - Prevention of more serious problems, such as an ulcer
  - Chronic constipation
  - Masked symptoms of serious underlying diseases

ANS: D

Long-term self-medication with antacids may mask symptoms of serious underlying diseases, such as bleeding ulcer or malignancy. Patients with ongoing symptoms need to undergo regular medical evaluations, because additional medications or other interventions may be needed.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. An older adult patient had gastric surgery due to a gastrointestinal bleed 3 days ago, and he has been stable since the surgery. This evening, his daughter tells the nurse, "He seems to be more confused this afternoon. He's never been like this. What could be the problem?" The nurse reviews the patient's medication record and suspects that which drug could be the cause of the patient's confusion?
- Cimetidine (Tagamet)
  - Pantoprazole (Protonix)
  - Clarithromycin (Biaxin)
  - Sucralfate (Carafate)

ANS: A

Sometimes H<sub>2</sub> receptor antagonists such as cimetidine may cause adverse effects related to the central nervous system in the older adult, including confusion and disorientation. The nurse needs to be alert for mental status changes when giving these drugs, especially if the changes are new to the patient.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

13. The nurse is teaching a patient who will be taking a proton pump inhibitor as long-term therapy about potential adverse effects. Which statement is correct?
- Proton pump inhibitors can cause diarrhea.
  - These drugs can cause nausea and anorexia.
  - Proton pump inhibitors cause drowsiness.
  - Long-term use of these drugs may contribute to osteoporosis.

ANS: D

New concerns have arisen over the potential for long-term users of proton pump inhibitors (PPIs) to develop osteoporosis. This is thought to be due to the inhibition of stomach acid, and it is speculated that PPIs speed up bone mineral loss. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

14. A patient in the intensive care unit has a nasogastric tube and is also receiving a proton pump inhibitor (PPI). The nurse recognizes that the purpose of the PPI is which effect?
- Prevent stress ulcers
  - Reduce bacteria levels in the stomach
  - Reduce gastric gas formation (flatulence)
  - Promote gastric motility

ANS: A

Stress-related mucosal damage is an important issue for critically ill patients. Stress ulcer prophylaxis (or therapy to prevent severe gastrointestinal [GI] damage) is undertaken in almost every critically ill patient in an intensive care unit and for many patients on general medical surgical units. Procedures performed commonly in critically ill patients, such as passing nasogastric tubes, placing patients on ventilators, and others, predispose patients to bleeding of the GI tract. Guidelines suggest that all such patients receive either a histamine receptor-blocking drug or a proton pump inhibitor. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### **MULTIPLE RESPONSE**

1. The nurse is providing patient teaching about antacids. Which statements about antacids are accurate? (*Select all that apply.*)
- Antacids reduce the production of acid in the stomach.
  - Antacids neutralize acid in the stomach.
  - Rebound hyperacidity may occur with calcium-based antacids.
  - Aluminum-based antacids cause diarrhea.
  - Magnesium-based antacids cause diarrhea.

ANS: B, C, E

Antacids neutralize acid in the stomach. Magnesium-based antacids cause diarrhea, and aluminum-based antacids cause constipation. Calcium-based antacids often cause rebound hyperacidity.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient will be receiving pantoprazole (Protonix), 20 mg IV daily every morning. The medication, once reconstituted, has a strength of 40 mg/10 mL. Identify how many milliliters the nurse will draw up for this dose. \_\_\_\_\_

ANS:

5 mL

40 mg:10 mL :: 20 mg: $x$  mL.

$(40 \times x) = (10 \times 20)$ ;  $40x = 200$ ;  $x = 5$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 51: Bowel Disorder Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is giving oral mineral oil as an ordered laxative dose. The nurse will take measures to prevent which potential problem that may occur with mineral oil?
  - a. Fecal impaction
  - b. Electrolyte imbalances
  - c. Lipid pneumonia
  - d. Esophageal blockage

ANS: C

Lipid pneumonia may occur if the oral mineral oil is accidentally aspirated into the respiratory tract. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. When administering a bulk-forming laxative, the nurse instructs the patient to drink the medication mixed in a full 8-ounce glass of water. Which statement best explains the rationale for this instruction?
  - a. The water acts to stimulate bowel movements.
  - b. The water will help to reduce the bulk of the intestinal contents.
  - c. These laxatives may cause esophageal obstruction if taken with insufficient water.
  - d. The water acts as a lubricant to produce bowel movements.

ANS: C

Bulk-forming drugs increase water absorption, which results in greater total volume (bulk) of the intestinal contents. Bulk-forming laxatives tend to produce normal, formed stools. Their action is limited to the gastrointestinal tract, so there are few, if any, systemic effects. However, they need to be taken with liberal amounts of water to prevent esophageal obstruction and/or fecal impaction.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

3. A patient will be taking bismuth subsalicylate (Pepto-Bismol) to control diarrhea. When reviewing the patient's other ordered medications, the nurse recognizes that which medication or medication class will interact significantly with the Pepto-Bismol?
  - a. Hypoglycemic drugs
  - b. Antibiotics
  - c. Acetaminophen (Tylenol)
  - d. Antidepressants

ANS: A

Taking hypoglycemic drugs with an adsorbent such as bismuth subsalicylate may result in decreased absorption of the hypoglycemic drugs. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Implementation  
MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

4. A patient is about to undergo a diagnostic bowel procedure. The nurse expects which drug to be used to induce total cleansing of the bowel?
- Docusate sodium (Colace)
  - Lactulose (Enulose)
  - Mineral oil
  - Polyethylene glycol 3350 (GoLYTELY)

ANS: D

Polyethylene glycol is a very potent laxative that induces total cleansing of the bowel and is most commonly used before diagnostic or surgical bowel procedures. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension) TOP: Nursing Process: Planning  
MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. While recovering from surgery, an elderly woman started taking a stimulant laxative, senna (Senokot), to relieve constipation caused by the pain medications. Two weeks later, at her follow-up appointment, she tells the nurse that she likes how “regular” her bowel movements are now that she is taking the laxative. Which teaching principle is appropriate for this patient?
- She needs to be sure to take this medication with plenty of fluids.
  - It is important to have a daily bowel movement to promote bowel health.
  - Long-term use of laxatives often results in decreased bowel tone and may lead to dependency.
  - She needs to switch to glycerin suppositories to continue having daily bowel movements.

ANS: C

Long-term use of laxatives may lead to dependency. Patients need to be taught that daily bowel movements are not necessary for bowel health.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation MSC: NCLEX: Health Promotion and Maintenance

6. A patient asks the nurse about the difference between diphenoxylate with atropine (Lomotil) and the over-the-counter drug loperamide (Imodium). Which response by the nurse is correct?
- “Lomotil acts faster than Imodium.”
  - “Imodium does not cause physical dependence.”
  - “Lomotil is available in suppository form.”
  - “Imodium is a natural antidiarrheal drug.”

ANS: B

Although the drug exhibits many characteristics of the opiate class, physical dependence on loperamide has not been reported. All antidiarrheal drugs are orally administered. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient wants to prevent problems with constipation and asks the nurse for advice about which type of laxative is safe to use for this purpose. Which class of laxative is considered safe to use on a long-term basis?
- Emollient laxatives
  - Bulk-forming laxatives
  - Hyperosmotic laxatives
  - Stimulant laxatives

ANS: B

Bulk-forming laxatives are the only laxatives recommended for a long-term use. Stimulant laxatives are the most likely of all the laxative classes to cause dependence. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. When administering mineral oil, the nurse recognizes that it can interfere with the absorption of which substance?
- Fat-soluble vitamins
  - Water-soluble vitamins
  - Minerals
  - Electrolytes

ANS: A

Mineral oil can decrease the absorption of fat-soluble vitamins (A, D, E, and K). The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is reviewing the mechanism of action of antidiarrheal drugs. Which type of antidiarrheal medication works by decreasing the intestinal muscle tone and peristalsis of the intestines?
- Adsorbents such as Pepto-Bismol
  - Anticholinergics such as belladonna alkaloids
  - Probiotics such as Lactinex
  - Lubricants such as mineral oil

ANS: B

Anticholinergic drugs work to slow peristalsis by reducing the rhythmic contractions and the smooth muscle tone of the gastrointestinal tract. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse is discussing the use of adsorbents such as bismuth subsalicylate (Pepto-Bismol) with a patient who has diarrhea. The nurse will warn the patient about which possible adverse effects?
- Dark stools and blue gums
  - Urinary hesitancy
  - Drowsiness and dizziness
  - Blurred vision and headache

ANS: A

Dark stools and blue gums are two of the possible adverse effects of bismuth subsalicylate (see Table 51-2). The other adverse effects listed may occur with the use of other antidiarrheal drugs.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. A patient who has been on antibiotic therapy for 2 weeks has developed persistent diarrhea. The nurse expects which medication class to be ordered to treat this diarrhea?
- Lubricants
  - Adsorbents
  - Anticholinergics
  - Probiotics

ANS: D

Probiotics work by replenishing bacteria that may have been destroyed by antibiotic therapy, thus restoring the balance of normal flora and suppressing the growth of diarrhea-causing bacteria.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

12. A patient will be taking bismuth subsalicylate (Pepto-Bismol) to control diarrhea. When reviewing the patient's other ordered medications, the nurse recognizes that which medication will interact significantly with the Pepto-Bismol?
- Acetaminophen (Tylenol), an analgesic
  - Levothyroxine (Synthroid), a thyroid replacement drug
  - Warfarin (Coumadin), an anticoagulant
  - Fluoxetine (Prozac), an antidepressant

ANS: C

The oral anticoagulant warfarin is more likely to cause increased bleeding times or bruising when co-administered with adsorbents. This is thought to be because the adsorbents bind to vitamin K, which is needed to make certain clotting factors. Vitamin K is synthesized by the normal bacterial flora in the bowel. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

13. A laxative has been ordered for a patient. The nurse checks the patient's medical history and would be concerned if which condition is present?
- High ammonia levels due to liver failure
  - Diverticulosis
  - Abdominal pain of unknown origin
  - Chronic constipation

ANS: C

All categories of laxatives share the same general contraindications and precautions, including avoidance in cases of drug allergy and the need for cautious use in the presence of these: acute surgical abdomen; appendicitis symptoms such as abdominal pain, nausea, and vomiting; fecal impaction (mineral oil enemas excepted); intestinal obstruction; and undiagnosed abdominal pain. The other options are possible indications for laxatives.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

14. A patient is severely constipated and needs immediate relief. The nurse knows that which class of laxative will provide the most rapid results?
- Bulk-forming laxative, such as psyllium (Metamucil)
  - Stool softener, such as docusate salts (Colace)
  - Magnesium hydroxide (MOM)
  - Magnesium oxide tablets

ANS: C

Saline laxatives such as magnesium hydroxide (MOM) produce a watery stool, usually within 3 to 6 hours of ingestion. Bulk-forming laxatives such as psyllium do not produce a bowel movement rapidly. Stool softeners such as docusate salts do not cause patients to defecate; they simply soften the stool to ease its passage. Magnesium oxide tablets are used as magnesium supplements, not as laxatives.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

15. A patient is receiving lactulose (Enulose) three times a day. The nurse knows that the patient is not constipated and is receiving this drug for which reason?
- High ammonia levels due to liver failure
  - Prevention of constipation
  - Chronic renal failure
  - Chronic diarrhea

ANS: A

Lactulose (Enulose) produces a laxative effect but also works to reduce blood ammonia levels by converting ammonia to ammonium. Ammonium is a water-soluble cation that is trapped in the intestines and cannot be reabsorbed into the systemic circulation. This effect has proved helpful in reducing elevated serum ammonia levels in patients with severe liver disease. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning



MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

16. A patient is taking linaclotide (Linzess) to treat irritable bowel syndrome (IBS). The nurse will monitor this patient for which adverse effect?
- Chest pain
  - Chronic constipation
  - Abdominal pain
  - Elevated blood glucose levels

ANS: C

Common adverse effects of linaclotide (Linzess) are diarrhea, abdominal pain, and flatulence. Elevated blood glucose levels, chest pain, and chronic constipation are not adverse effects of linaclotide.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

17. The nurse is preparing to administer methylnaltrexone (Relistor). This drug is appropriate for which patient?
- A patient with diarrhea
  - A terminally ill patient who has opioid-induced constipation
  - A patient who is scheduled for a colonoscopy
  - A patient who will be having colon surgery in the morning

ANS: B

Methylnaltrexone is approved only for terminally ill (hospice) patients who have opioid-induced constipation. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

18. A patient has been treated with alosetron (Lotronex) for severe irritable bowel syndrome (IBS) for 2 weeks. She calls the clinic and tells the nurse that she has been experiencing constipation for 3 days. The nurse will take which action?
- Advise the patient to increase intake of fluids and fiber.
  - Advise the patient to hold the drug for 2 days.
  - Instruct the patient to stop taking the drug and to come to the clinic right away to be evaluated.
  - Instruct the patient to continue the alosetron and to take milk of magnesia for the constipation.

ANS: C

Alosetron must be discontinued immediately if constipation or signs of ischemic colitis occur. The other options are incorrect.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. The nurse is reviewing the uses of oral laxatives. Which conditions are general contraindications to or cautions about the use of oral laxatives? (*Select all that apply.*)
  - a. Irritable bowel syndrome
  - b. Undiagnosed abdominal pain
  - c. Nausea and vomiting
  - d. Fecal impaction
  - e. Ingestion of toxic substances
  - f. Acute surgical abdomen

ANS: B, C, D, F

Cautious use of laxatives is recommended in the presence of these: acute surgical abdomen; appendicitis symptoms, such as abdominal pain, nausea, and vomiting; intestinal obstruction; and undiagnosed abdominal pain. Oral laxatives must not be used with fecal impaction; mineral oil enemas are indicated for fecal impaction. The other options are indications for other laxative use.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

### COMPLETION

1. A 10-year-old child will be receiving docusate sodium (Colace), 120 mg/day PO, divided into 3 doses. Identify how many milligrams will the child receive per dose. \_\_\_\_\_

ANS:

40 mg

$120 \text{ mg/day} \div 3 \text{ doses/day} = 40 \text{ mg.}$

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 52: Antiemetic and Antinausea Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient is receiving a tube feeding through a gastrostomy. The nurse expects that which type of drug will be used to promote gastric emptying for this patient?
  - a. Prokinetic drugs, such as metoclopramide (Reglan)
  - b. Serotonin blockers, such as ondansetron (Zofran)
  - c. Anticholinergic drugs, such as scopolamine (Transderm-Scop)
  - d. Neuroleptic drugs, such as chlorpromazine (Thorazine)

ANS: A

Prokinetic drugs promote the movement of substances through the gastrointestinal tract and increase gastrointestinal motility.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient who has AIDS has lost weight and is easily fatigued because of his malnourished state. The nurse anticipates an order for which antinausea drug to stimulate his appetite?
  - a. Metoclopramide (Reglan), a prokinetic drug
  - b. Dronabinol (Marinol), a tetrahydrocannabinoid
  - c. Ondansetron (Zofran), a serotonin blocker
  - d. Aprepitant (Emend), a substance P/NK1 receptor antagonist

ANS: B

Dronabinol is used for the treatment of nausea and vomiting associated with cancer chemotherapy, generally as a second-line drug after treatment with other antiemetics has failed. It is also used to stimulate appetite and weight gain in patients with AIDS and in patients undergoing chemotherapy. The drugs in the other options are used to reduce or prevent nausea and vomiting but are not used to stimulate appetite.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient on chemotherapy is using ondansetron (Zofran) for treatment of nausea. The nurse will instruct the patient to watch for which adverse effect of this drug?
  - a. Dizziness
  - b. Diarrhea
  - c. Dry mouth
  - d. Blurred vision

ANS: B

Diarrhea is an adverse effect of the serotonin blockers. The other adverse effects listed may occur with anticholinergic drugs.

DIF: Cognitive Level: Understanding (Comprehension)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient who has severe nausea and vomiting following a case of food poisoning comes to the urgent care center. When reviewing his medication history, the nurse notes that he has an allergy to procaine. The nurse would question an order for which antiemetic drug if ordered for this patient?
- Metoclopramide (Reglan)
  - Promethazine (Phenergan)
  - Phosphorated carbohydrate solution (Emetrol)
  - Palonosetron (Aloxi)

ANS: A

The use of metoclopramide (Reglan) is contraindicated in patients with a hypersensitivity to procaine or procainamide. There are no known interactions with the drugs listed in the other options.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. A mother calls the pediatrician's office to report that her 18-month-old child has eaten half of a bottle of baby aspirin. She says, "I have a bottle of syrup of ipecac. Should I give it to him? He seems fine right now. What do I do?" What is the nurse's best response?
- "Go ahead and give him the ipecac, and then call 911."
  - "Don't give him the ipecac. Call the Poison Control number immediately for instructions."
  - "Please come to the office right away so that we can check him."
  - "Go ahead and take him to the emergency room right now."

ANS: B

The American Academy of Pediatrics no longer recommends the use of syrup of ipecac for home treatment for poisoning. In *all* cases of poisoning, if the victim is conscious and alert, call the local poison control center. If the victim has collapsed or stopped breathing, call 911 for emergency transport to a hospital. See: Patient-Centered Care: Lifespan Considerations for the Pediatric Patient Syrup of Ipecac and Poisoning.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient is taking chemotherapy with a drug that has a high potential for causing nausea and vomiting. The nurse is preparing to administer an antiemetic drug. Which class of antiemetic drugs is most commonly used to prevent nausea and vomiting for patients receiving chemotherapy?
- Prokinetic drugs, such as metoclopramide (Reglan)
  - Serotonin blockers, such as ondansetron (Zofran)
  - Anticholinergic drugs, such as scopolamine
  - Neuroleptic drugs, such as promethazine (Phenergan)

ANS: B

Serotonin blockers are used to prevent chemotherapy-induced and postoperative nausea and vomiting. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation  
MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

7. A patient who has been newly diagnosed with vertigo will be taking an antihistamine antiemetic drug. The nurse will include which information when teaching the patient about this drug?
- The patient may skip doses if the patient is feeling well.
  - The patient will need to avoid driving because of possible drowsiness.
  - The patient may experience occasional problems with taste.
  - It is safe to take the medication with a glass of wine in the evening to help settle the stomach.

ANS: B

Drowsiness may occur because of central nervous system (CNS) depression, and patients should avoid driving or working with heavy machinery because of possible sedation. These drugs must not be taken with alcohol or other CNS depressants because of possible additive depressant effects. The medication should be taken as instructed and not skipped unless instructed to do so.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation  
MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient with motion sickness is planning a cross-country car trip and has a new prescription for a scopolamine transdermal patch (Transderm-Scop). The nurse provides teaching for the use of this patch medication. The patient shows a correct understanding of the teaching with which statement?
- "I will change the patch every day."
  - "I will change the patch every other day."
  - "I will change the patch every 3 days."
  - "I will remove the patch only if it stops working."

ANS: C

Scopolamine patches are 72-hour doses and are changed every 3 days. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Planning  
MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A woman who is in the first trimester of pregnancy has been experiencing severe morning sickness. She asks, "I've heard that ginger tablets may be a natural way to ease the nausea and vomiting. Is it okay to try them?" What is the nurse's best response?
- "They are a safe and natural remedy for nausea when you are pregnant."
  - "Go ahead and try them, but stop taking them once the nausea is relieved."
  - "Some health care providers do not recommend ginger during pregnancy. Let's check with your provider."
  - "You will need to wait until after the first trimester to try them."

ANS: C

There is some anecdotal evidence that ginger may have abortifacient properties, and for this reason some providers do not recommend its use during pregnancy.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

10. The nurse is reviewing new postoperative orders and notes that the order reads, “Give hydroxyzine (Vistaril) 50 mg IV PRN nausea or vomiting.” The patient states that he has slight nausea. Which action by the nurse is correct at this time?
- Hold the dose until the patient states that the nausea is severe.
  - Give the dose orally instead of intravenously.
  - Give the patient the IV dose of hydroxyzine as ordered.
  - Call the prescriber to question the route that is ordered.

ANS: D

The nurse needs to question the route. Hydroxyzine (Vistaril) is an antihistamine-class antiemetic that is only to be given either by oral or intramuscular routes. It may be easy to make the mistake of giving hydroxyzine intravenously because many other antiemetics are given by that route. It is important to note that intravenous, intra-arterial, or subcutaneous administration of hydroxyzine may result in significant tissue damage, thrombosis, and gangrene. The nurse cannot change the route of an ordered medication without a prescriber’s order. Antiemetic drugs are best given before the patient’s nausea become severe.

DIF: Cognitive Level: Analyzing (Analysis)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

## MULTIPLE RESPONSE

1. A patient is on a chemotherapy regimen in an outpatient clinic and is receiving a chemotherapy drug that is known to be highly emetogenic. The nurse will implement which interventions regarding the pharmacologic management of nausea and vomiting? (*Select all that apply.*)
- Giving antinausea drugs at the beginning of the chemotherapy infusion
  - Administering antinausea drugs 30 to 60 minutes before chemotherapy is started
  - For best therapeutic effects, medicating for nausea once the symptoms begin
  - Observing carefully for the adverse effects of restlessness and anxiety
  - Instructing the patient that the antinausea drugs may cause extreme drowsiness
  - Instructing the patient to rise slowly from a sitting or lying position because of possible orthostatic hypotension

ANS: B, E, F

Antiemetics should be given before any chemotherapy drug is administered, often 30 to 60 minutes before treatment, but not immediately before chemotherapy is administered. Do not wait until the nausea begins. Most antiemetics cause drowsiness, not restlessness and anxiety. Orthostatic hypotension is a possible adverse effect that may lead to injury.

DIF: Cognitive Level: Applying (Application)  
TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. An adult patient is about to receive intravenous (IV) ondansetron (Zofran) during a chemotherapy treatment. A dose of 0.15 mg/kg IV 30 minutes before chemotherapy is ordered. The patient weighs 140 pounds. The medication is supplied in a vial marked 2 mg/mL for IV administration. Identify how many milliliters the nurse will administer for this dose. (record answer to one decimal place) \_\_\_\_\_

ANS:

4.8 mL

Convert pounds to kilograms:  $140 \div 2.2 = 63.6$  kg.

Calculate milligrams per dose:  $0.15 \text{ mg/kg} \times 63.6 \text{ kg} = 9.54 = 9.5$  mg/dose.

Calculate milliliters to be given:

2 mg:1 mL :: 9.5 mg: $x$  mL.

$(2 \times x) = (1 \times 9.5)$ ;  $2x = 9.5$ ;  $x = 4.75$ , which rounds to 4.8 mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 53: Vitamins and Minerals

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is reviewing conditions caused by nutrient deficiencies. Conditions such as infantile rickets, tetany, and osteomalacia are caused by a deficiency in which vitamin or mineral?
  - a. Vitamin D
  - b. Vitamin C
  - c. Zinc
  - d. Cyanocobalamin (vitamin B<sub>12</sub>)

ANS: A

Infantile rickets, tetany, and osteomalacia are all a result of long-term vitamin D deficiency. The other options are incorrect.

DIF: Cognitive Level: Remembering (Knowledge)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

2. The nurse is preparing a plan of care for a patient undergoing therapy with vitamin A. Which of these are possible effects of vitamin A deficiency?
  - a. Impaired wound healing
  - b. Night blindness
  - c. Muscle twitching
  - d. Confusion

ANS: B

Symptoms of vitamin A deficiency include night blindness, xerophthalmia, keratomalacia (softening of the cornea), hyperkeratosis of both the stratum corneum (outermost layer) of the skin and the sclera (outermost layer of eyeball), retarded infant growth, generalized weakness, and increased susceptibility of mucous membranes to infection.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Nursing Diagnosis

MSC: NCLEX: Health Promotion and Maintenance

3. A patient is on vitamin D supplemental therapy. The nurse will monitor for which signs of toxicity during this therapy?
  - a. Tinnitus
  - b. Anorexia
  - c. Diarrhea
  - d. Hypotension

ANS: B



The toxic effects of vitamin D are those associated with hypertension, such as weakness, fatigue, headache, anorexia, dry mouth, metallic taste, nausea, vomiting, abdominal cramps, ataxia, and bone pain. If not recognized and treated, these symptoms can progress to impairment of renal function and osteoporosis. The other options listed are not signs of vitamin D toxicity.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Health Promotion and Maintenance

4. The nurse is counseling a patient about calcium supplements. Which dietary information is appropriate during this teaching session?
- “Take oral calcium supplements with meals.”
  - “There are no drug interactions with calcium products.”
  - “Avoid foods that are high in calcium, such as beef, egg yolks, and liver.”
  - “Be sure to eat foods high in calcium, such as dairy products and salmon.”

ANS: D

Foods high in calcium include dairy products, fortified cereals, calcium-fortified orange juice, sardines, and salmon. Patients can be encouraged to add dietary sources of calcium to their diets. Oral-dosage forms of calcium need to be given 1 to 3 hours after meals. Calcium salts will bind with tetracycline and quinolone antibiotics and result in an insoluble complex.

DIF: Cognitive Level: Analyzing (Analysis)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

5. The nurse will prepare to give which preparation to a newborn upon arrival in the nursery after delivery?
- Vitamin B<sub>1</sub> (thiamine)
  - Vitamin D (calciferol)
  - Folic acid
  - Vitamin K (AquaMEPHYTON)

ANS: D

Deficiency in vitamin K can be seen in newborns because of malabsorption attributed to inadequate amounts of bile. AquaMEPHYTON is given as a single intramuscular dose for infants upon arrival in the nursery.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient with a history of alcohol abuse has been admitted for severe weakness and malnutrition. The nurse will prepare to administer which vitamin preparation to prevent Wernicke's encephalopathy?
- Vitamin B<sub>3</sub> (niacin)
  - Vitamin B<sub>1</sub> (thiamine)
  - Vitamin B<sub>6</sub> (pyridoxine)
  - Folic acid

ANS: B

Thiamine is necessary for the treatment of a variety of thiamine deficiencies, including Wernicke's encephalopathy. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. Niacin is prescribed for a patient who has hyperlipidemia. The nurse checks the patient's medical history, knowing that this medication is contraindicated in which disorder?
- Renal disease
  - Cardiac disease
  - Liver disease
  - Diabetes mellitus

ANS: C

Niacin, unlike certain other B-complex vitamins, has additional contraindications besides drug allergy. They include liver disease, severe hypotension, arterial hemorrhage, and active peptic ulcer disease. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. A patient will be starting vitamin D supplements. The nurse reviews his medical record for contraindications, including which condition?
- Renal disease
  - Cardiac disease
  - Hypophosphatemia
  - There are no contraindications to vitamin D supplements.

ANS: A

Contraindications to vitamin D products include known allergy to the product, hypercalcemia, renal dysfunction, and hyperphosphatemia.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient accidentally took an overdose of the anticoagulant warfarin (Coumadin), and the nurse is preparing to administer vitamin K as an antidote. Which statement about vitamin K is accurate?
- The vitamin K dose will be given intramuscularly.
  - The patient will take oral doses of vitamin K after the initial injection.
  - The vitamin K cannot be given if the patient has renal disease.
  - The patient will be unresponsive to warfarin therapy for 1 week after the vitamin K is given.

ANS: D

When vitamin K is used as an antidote to warfarin therapy, the patient becomes unresponsive to warfarin for approximately 1 week after vitamin K administration. The use of vitamin K products is contraindicated in patients who are in the last few weeks of pregnancy and in patients with severe hepatic disease. Vitamin K is given subcutaneously and not intramuscularly when used to reverse warfarin effects.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A newly admitted patient has orders for a zinc supplement. The nurse reviews the patient's medical history and concludes that the zinc is ordered for which reason?
  - a. To treat pellagra
  - b. To aid in wound healing
  - c. To treat osteomalacia
  - d. As an antidote for anticoagulant overdose

ANS: B

Zinc plays a crucial role in the enzymatic metabolic reactions involving both proteins and carbohydrates. This makes it especially important for normal tissue growth and repair. It therefore also has a major role in wound healing. Vitamin B<sub>3</sub> (niacin) is used to treat pellagra; vitamin D is used to treat osteomalacia; and vitamin K is used as an antidote for anticoagulant overdose.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

1. The nurse is reviewing vitamin therapy in preparation for a nutrition class. Which statements are accurate regarding vitamin C (ascorbic acid)? (*Select all that apply.*)
  - a. Vitamin C is important in the maintenance of bone, teeth, and capillaries.
  - b. Vitamin C is essential for night vision.
  - c. Vitamin C is important for tissue repair.
  - d. Vitamin C is found in animal sources such as dairy products and meat.
  - e. Vitamin C is found in tomatoes, strawberries, and broccoli.
  - f. Vitamin C is also known as the "sunshine vitamin."
  - g. Vitamin C deficiency is known as scurvy.

ANS: A, C, E, G

These statements are true of vitamin C. Vitamin A is essential for night vision, and vitamin D is known as the sunshine vitamin. With the exception of liver, meat and dairy products are not sources of vitamin C.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The patient asks the nurse about taking large doses of vitamin C to improve her immunity to colds. "It's just a vitamin, right? What can happen?" Which responses by the nurse are correct? (*Select all that apply.*)
- "Vitamin C is harmless because it is a water-soluble vitamin."
  - "Large doses of vitamin C can cause nausea, vomiting, headache, and abdominal cramps."
  - "Keep in mind that if you suddenly stop taking these large doses, you might experience symptoms similar to scurvy."
  - "Studies have shown that vitamin C has little value in preventing the common cold."
  - "Vitamin C acidifies the urine, which can lead to the formation of kidney stones."
  - "Large doses of vitamin C may delay wound healing."

ANS: B, C, D, E

Vitamin C is usually nontoxic unless excessive dosages are consumed. Large doses (megadoses) can produce nausea, vomiting, headache, and abdominal cramps, and they acidify the urine, which can result in the formation of kidney stones. Furthermore, individuals who discontinue taking excessive daily doses of ascorbic acid can experience scurvy-like symptoms. Studies have shown that megadoses of vitamin C have little or no value as prophylaxis against the common cold. Vitamin C is required for several important metabolic activities, including collagen synthesis and the maintenance of connective tissue and tissue repair.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. During an intravenous infusion of calcium, the nurse carefully monitors the patient for symptoms of hypercalcemia. Which are symptoms of hypercalcemia? (*Select all that apply.*)
- Anorexia
  - Nausea and vomiting
  - Diarrhea
  - Constipation
  - Cardiac irregularities
  - Drowsiness

ANS: A, B, D, E

Symptoms of hypercalcemia include anorexia, nausea, vomiting, and constipation. Long-term excessive calcium intake can result in severe hypercalcemia, which can cause cardiac irregularities, delirium, and coma. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A patient will be receiving monthly injections of cyanocobalamin (Nascobal). The dose is 100 mcg/month IM. The medication is available in a strength of 1000 mcg/mL. Identify how many milliliters the nurse will draw up into the syringe. (record answer using one decimal place) \_\_\_\_\_

ANS:

0.1 mL

1000 mcg:1 mL :: 100 mcg: $x$  mL.

$(1000 \times x) = (1 \times 100)$ ;  $1000x = 100$ ;  $x = 0.1$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 54: Anemia Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient is to receive iron dextran injections. Which technique is appropriate when the nurse is administering this medication?
  - a. Intravenous administration mixed with 5% dextrose
  - b. Intramuscular injection in the upper arm
  - c. Intramuscular injection using the Z-track method
  - d. Subcutaneous injection into the abdomen

ANS: C

Intramuscular iron is given using the Z-track method deep into a large muscle mass. If given intravenously, it is given with normal saline, not 5% dextrose.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A nurse is giving instructions to a patient who will be receiving oral iron supplements. Which instructions will be included in the teaching plan?
  - a. Take the iron tablets with milk or antacids.
  - b. Crush the pills as needed to help with swallowing.
  - c. Take the iron tablets with meals if gastrointestinal distress occurs.
  - d. If black tarry stools occur, report it to the doctor immediately.

ANS: C

Although taking iron tablets with food may decrease absorption, doing so helps to reduce gastrointestinal distress. Antacids and milk may cause decreased iron absorption; iron tablets must be taken whole and not crushed. Black, tarry stools are expected adverse effects of oral iron supplements.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The nurse will teach a patient who is receiving oral iron supplements to watch for which expected adverse effects?
  - a. Palpitations
  - b. Drowsiness and dizziness
  - c. Black, tarry stools
  - d. Orange-red discoloration of the urine

ANS: C

Black, tarry stools and other gastrointestinal disturbances may occur with the administration of iron preparations. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient has been taking iron supplements for anemia for 2 months. During a follow-up assessment, the nurse will observe for which therapeutic response?
- Decreased weight
  - Increased activity tolerance
  - Decreased palpitations
  - Increased appetite

ANS: B

Absence of fatigue, increased activity tolerance and well-being, and improved nutrition status are therapeutic responses to iron supplementation. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

5. An oral iron supplement is prescribed for a patient. The nurse would question this order if the patient's medical history includes which condition?
- Decreased hemoglobin
  - Hemolytic anemia
  - Weakness
  - Concurrent therapy with erythropoietics

ANS: B

Iron supplements are contraindicated in anemias that are not caused by iron-deficiency, such as hemolytic anemia. Decreased hemoglobin and weakness are related to iron-deficiency anemia. Iron supplements are given with erythropoietic drugs to aid in the production of red blood cells.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. The nurse is reviewing the medical record of a patient before giving a new order for iron sucrose (Venofer). Which statement regarding the administration of iron sucrose is correct?
- The medication is given with food to reduce gastric distress.
  - Iron sucrose is contraindicated if the patient has renal disease.
  - A test dose will be administered before the full dose is given.
  - The nurse will monitor the patient for hypotension during the infusion.

ANS: D

Iron sucrose (Venofer) is an injectable iron product indicated for the treatment of iron-deficiency anemia in patients with chronic renal disease. It is also used for patients without kidney disease. Its risk of precipitating anaphylaxis is much less than that of iron dextran, and a test dose is not required. Hypotension is the most common adverse effect and appears to be related to infusion rate. Low-weight elderly patients appear to be at greatest risk for hypotension.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is teaching a patient with iron-deficiency anemia about foods to increase iron intake. Which food may enhance the absorption of oral iron forms?
- Milk
  - Yogurt
  - Antacids
  - Orange juice

ANS: D

Orange juice contains ascorbic acid, which enhances the absorption of oral iron forms; antacids, milk, and yogurt may interfere with absorption.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is administering liquid oral iron supplements. Which intervention is appropriate when administering this medication?
- Have the patient take the liquid iron with milk.
  - Instruct the patient to take the medication through a plastic straw.
  - Have the patient sip the medication slowly.
  - Have the patient drink the medication, undiluted, from the unit-dose cup.

ANS: B

Liquid oral forms of iron need to be taken through a plastic straw to avoid discoloration of tooth enamel. Milk may decrease absorption.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A woman who is planning to become pregnant should ensure that she receives adequate levels of which supplement to reduce the risk for fetal neural tube defects?
- Vitamin B<sub>12</sub>
  - Vitamin D
  - Iron
  - Folic acid

ANS: D

It is recommended that administration of folic acid be begun at least 1 month before pregnancy and continue through early pregnancy to reduce the risk for fetal neural tube defects.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

10. The nurse is administering folic acid to a patient with a new diagnosis of anemia. Which statement about treatment with folic acid is true?
- Folic acid is used to treat any type of anemia.
  - Folic acid is used to treat iron-deficiency anemia.
  - Folic acid is used to treat pernicious anemia.



- d. The specific cause of the anemia needs to be determined before treatment.

ANS: D

Folic acid should not be used to treat anemias until the underlying cause and type of anemia have been identified. Administering folic acid to a patient with pernicious anemia may correct the hematologic changes of anemia, but the symptoms of pernicious anemia (which is due to a vitamin B<sub>12</sub> deficiency, not a folic acid deficiency) may be deceptively masked. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

11. During therapy with the hematopoietic drug epoetin alfa (Epogen), the nurse instructs the patient about adverse effects that may occur, such as:
- anxiety.
  - drowsiness.
  - hypertension.
  - constipation.

ANS: C

Hypertension is an adverse effect of hematopoietic drugs, along with headache, fever, pruritus, rash, nausea, vomiting, arthralgia, cough, and injection site reaction. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

12. The nurse is administering intravenous iron dextran for the first time to a patient with anemia. After giving a test dose, how long will the nurse wait before administering the remaining portion of the dose?
- 30 minutes
  - 1 hour
  - 6 hours
  - 24 hours

ANS: B

Although anaphylactic reactions usually occur within a few moments after the test dose, it is recommended that a period of at least 1 hour elapse before the remaining portion of the initial dose is given. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

13. A patient with end-stage renal failure has been admitted to the hospital for severe anemia. The patient is refusing blood transfusions. The nurse anticipates drug therapy with which drug to stimulate the production of red blood cells?
- Folic acid
  - Cyanocobalamin (vitamin B<sub>12</sub>)
  - Epoetin alfa (Epogen)

d. Filgrastim (Neupogen)

ANS: C

Epoetin alfa is a colony-stimulating factor that is responsible for erythropoiesis, or formation of red blood cells. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

14. A cancer patient is receiving drug therapy with epoetin alfa (Epogen). The nurse knows that the medication must be stopped if which laboratory result is noted?
- White blood cell count of 550 cells/mm<sup>3</sup>
  - Hemoglobin level of 12 g/dL
  - Potassium level of 4.2 mEq/L
  - Glucose level of 78 mg/dL

ANS: B

If epoetin is continued when hemoglobin levels are above 11 g/dL, patients may experience serious adverse events, including heart attack, stroke, and death. Guidelines now recommend that the drug be stopped when the hemoglobin level reaches 10 g/dL for cancer patients. For renal patients, the target hemoglobin level is 11 g/dL for patients on dialysis and 10 g/dL for chronic renal patients not on dialysis.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

15. A patient has been receiving epoetin alfa (Epogen) for severe iron-deficiency anemia. Today, the provider changed the order to darbepoetin (Aranesp). The patient questions the nurse, "What is the difference in these drugs?" Which response by the nurse is correct?
- "There is no difference in these two drugs."
  - "Aranesp works faster than Epogen to raise your red blood cell count."
  - "Aranesp is given by mouth, so you will not need to have injections."
  - "Aranesp is a longer-acting form, so you will receive fewer injections."

ANS: D

Darbepoetin (Aranesp) is longer-acting than epoetin alfa (Epogen); therefore, fewer injections are required. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## MULTIPLE RESPONSE

- A patient will be taking oral iron supplements at home. The nurse will include which statements in the teaching plan for this patient? (*Select all that apply.*)
  - Take the iron tablets with meals to reduce GI upset.
  - Take the iron tablets on an empty stomach 1 hour before meals.
  - Take the iron tablets with an antacid to prevent heartburn.

- d. Drink 8 ounces of milk with each iron dose.
- e. Taking iron supplements with orange juice enhances iron absorption.
- f. Stools may become loose and light in color.
- g. Stools may become black and tarry.
- h. Tablets may be crushed to enhance iron absorption.

ANS: A, E, G

Iron tablets need to be taken with meals to reduce gastrointestinal distress, but antacids and milk interfere with absorption. Orange juice enhances the absorption of iron. Stools may become black and tarry in patients who are on iron supplements. Tablets need to be taken whole, not crushed, and the patient needs to be encouraged to eat foods high in iron.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## COMPLETION

1. A 2-year-old child will be receiving ferrous sulfate oral drops (Fer-Iron) 5 mg/kg/day in three divided doses. The child weighs 26 pounds. Identify how many milligrams the nurse will administer per dose. (record answer using one decimal place) \_\_\_\_\_

ANS:

19.7 mg

Convert pounds to kilograms:  $26 \div 2.2 = 11.8$  kg.

Calculate the total dose per day:  $5 \text{ mg/kg/day} \times 11.8 \text{ kg} = 59 \text{ mg/day}$ .

Divide into 3 doses:  $59 \text{ mg/day} \div 3 \text{ doses/day} = 19.666$  rounded to 19.7; administer 19.7 mg/dose.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient will be receiving epoetin alfa (Epogen) 8000 units IV three times a week. The medication is available in a vial that contains 10,000 units/mL. How many milliliters will the nurse draw up for this dose? \_\_\_\_\_

ANS:

0.8 mL

$10,000 \text{ units}:1 \text{ mL} :: 8000 \text{ units}:x \text{ mL}$ .

$(10,000 \times x) = (1 \times 8000)$ ;  $10,000x = 8000$ ;  $x = 0.8$  mL.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 55: Nutritional Supplements

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A patient is receiving a nutritional supplement via an enteral feeding tube. The nurse will monitor for which common adverse effect?
  - a. Diarrhea
  - b. Constipation
  - c. Fluid overload
  - d. Heartburn

ANS: A

Diarrhea is the most common result of the gastrointestinal intolerance that occurs with nutritional supplementation.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Basic Care and Comfort

2. An older adult patient needs to receive an enteral supplement to improve her overall nutritional status. When considering enteral supplements, the nurse notes that which formulation provides complex nutrients?
  - a. Ensure Plus
  - b. Moducal
  - c. Propac
  - d. Microlipid

ANS: A

Ensure Plus is a polymeric formulation that contains complex nutrients, including proteins, carbohydrates, and fats. Moducal provides carbohydrates only; Propac is a protein formulation, and Microlipid supplies only fats (see Box 55-1).

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A woman has been receiving both radiation and chemotherapy for her cancer. Lately, she has developed anorexia caused by the treatments, so she needs short-term nutrition supplementation. The nurse anticipates that the physician will initiate which therapy?
  - a. Central total parenteral nutrition
  - b. Peripheral parenteral nutrition
  - c. Oral nutritional supplements with meals
  - d. Nasogastric enteral supplementation

ANS: B

Peripheral parenteral nutrition is indicated for anorexia caused by radiation or cancer chemotherapy. Total parenteral nutrition is indicated for more long-term use. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. During the night shift, a patient's total parenteral nutrition (TPN) infusion ran out, and the nurse discovered that there was no TPN solution on hand to continue the infusion. The pharmacy is closed and will not reopen for 5 hours. The nurse will have to implement measures to prevent which consequence of abruptly discontinuing TPN infusions?
- Dehydration
  - Hyperglycemia
  - Dumping syndrome
  - Rebound hypoglycemia

ANS: D

Rebound hypoglycemia may occur if TPN is discontinued abruptly. It may be prevented by infusion of 5% to 10% glucose in situations in which TPN must be stopped abruptly. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. When monitoring a patient who has been receiving peripheral parenteral nutrition for more than 3 weeks, the nurse will watch for which potential complication?
- Diarrhea
  - Phlebitis
  - Hypernatremia
  - Hypoglycemia

ANS: B

The long-term administration of nutritional supplements via a peripheral vein may lead to phlebitis and, possibly, the loss of a limb.

DIF: Cognitive Level: Applying (Application)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A patient has been receiving total parenteral nutrition. Upon assessment, the nurse notes these assessment findings: blood pressure 150/92 mm Hg (elevated from previous readings); pulse rate 110 beats/min and weak; pitting edema on both ankles; and new-onset confusion. The nurse suspects that the patient is experiencing which condition?
- Infection
  - Hypoglycemia
  - Hyperglycemia
  - Fluid overload

ANS: D

Fluid overload may occur with parenteral nutrition. It is manifested by weak pulse, hypertension, tachycardia, confusion, decreased urine output, and pitting edema.

DIF: Cognitive Level: Analyzing (Analysis)  
Evaluation

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The peripheral parenteral nutrition bag that has been infusing into the patient is empty, and the nurse realizes that the next bag is not ready. The nurse should immediately hang which of these intravenous solutions until the new bag arrives?
- 10% dextrose in water
  - 20% dextrose in water
  - 0.9% sodium chloride
  - Lactated Ringer's solution

ANS: A

If intravenous parenteral nutrition is discontinued abruptly, rebound hypoglycemia may occur. This can be prevented with infusion of 5% to 10% glucose until the parenteral nutrition infusion is ready. For peripheral infusions, the dextrose must not be more than 10%.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is preparing to administer medications to a patient who is receiving a feeding via a gastric tube. When reviewing the patient's medication list, the nurse notes a potential concern about a food-drug interaction if which medication is listed?
- Multivitamin solution
  - Phenytoin (Dilantin)
  - Metoclopramide (Reglan)
  - Warfarin (Coumadin)

ANS: B

Tube feedings can reduce the absorption of phenytoin, which may result in seizures. It is recommended that tube feedings be held for at least 2 hours before and after the administration of phenytoin.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient with type 2 diabetes will be receiving a nasogastric tube feeding for a few days. The nurse expects which type of formula to be used?
- Jevity
  - Ensure Plus
  - Glucerna
  - Polycose

ANS: C

Glucerna is a formulation designed for use in patients with impaired glucose tolerance (e.g., diabetic patients). The other options are not designed for patients with diabetes.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. A patient with a partial bowel obstruction will be given a 1-week course of enteral tube feeding via a nasogastric tube. Which formulation is appropriate for this patient?
- Vivonex Plus, an elemental formulation
  - Osmolite, a polymeric formulation
  - Glucerna, a formulation for impaired glucose tolerance
  - Polycose, a modular formulation that contains carbohydrates

ANS: A

Elemental formulations are enteral supplements that require minimal digestion and are indicated for patients with pancreatitis, partial bowel obstruction, irritable bowel disease, and other problems. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### MULTIPLE RESPONSE

1. The nurse is administering a parenteral nutrition infusion to a patient. The nurse will implement which measures to prevent infection? (*Select all that apply.*)
- Change the intravenous tubing set every 72 hours.
  - Change the intravenous tubing set every time a new bag is added to the infusion.
  - Use a 1.2-micron filter with each tubing set.
  - Monitor the patient's temperature every shift during the infusion.
  - Report any increase in the patient's temperature over 100° F (37.8° C).

ANS: B, C, E

To prevent infection, parenteral nutrition tubing is changed every time a new bag is added to the infusion. A 1.2-micron filter is used to trap bacteria. Record the patient's temperature every 4 hours during the infusion, and report to the prescriber immediately any increase in temperature over 100° F (37.8° C).

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

### COMPLETION

1. The total parenteral nutrition (TPN) order reads, "Infuse TPN #2 over 24 hours." Bag #2 of TPN contains 1800 mL. At what rate will the nurse set the infusion pump? \_\_\_\_\_

ANS:

75 mL/hr

Divide the total amount of the infusion (1800) by 24 hours to obtain the hourly rate.  
 $1800 \text{ mL} \div 24 \text{ hours} = 75 \text{ mL/hr}$ .

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

## Chapter 56: Dermatologic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. A teenage boy is taking tretinoin (Retin-A) for acne. Which statement will the nurse include in the teaching plan?
  - a. "Avoid foods that are heavy in salt and oils."
  - b. "This drug may cause increased redness of your skin."
  - c. "Try using an abrasive cleanser to remove old skin layers."
  - d. "Being out in the sunlight will help your skin heal."

ANS: B

Tretinoin may cause increased redness and drying, and the patient needs to avoid weather extremes, ultraviolet light, and abrasive cleansers. Certain foods do not need to be avoided.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

2. The preoperative nurse is ready to perform a skin prep with povidone-iodine (Betadine) on a patient who is about to have abdominal surgery. Which allergies, if present, would be a contraindication to the Betadine prep?
  - a. Peanuts
  - b. Shellfish
  - c. Adhesives
  - d. Latex

ANS: B

Povidone-iodine, a widely used antiseptic, cannot be used in patients who are allergic to iodine or have shellfish allergies.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Safe and Effective Care Environment: Safety and Infection Control

3. A woman suffered a second-degree burn of the skin on her arm and hand while cooking breakfast. After examination in the urgent care center, silver sulfadiazine cream (Silvadene) is ordered for the burned area. The nurse will apply the medication using which procedure?
  - a. Gently patting a moderate amount over the burned area
  - b. Massaging the cream completely into the wound
  - c. Applying a thick layer over the burned area, and then leaving the area open
  - d. Applying a thin layer with a sterile, gloved hand to clean and débrided areas

ANS: D

Apply a thin layer of medication with a sterile, gloved hand to clean and débrided wounds. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)



TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient asks about using minoxidil (Rogaine) for hair thinning. Which statement about minoxidil is accurate?
- The product is applied once daily in the morning.
  - Systemic absorption of topically applied minoxidil is rare.
  - Results may be seen as soon as 2 weeks after beginning therapy.
  - Systemic absorption may cause tachycardia, fluid retention, and weight gain.

ANS: D

Results of minoxidil therapy may not be seen for 4 months after beginning therapy. The product is applied twice daily, morning and evening, and systemic effects may result because of absorption.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. A child has been diagnosed with impetigo, a skin infection. The nurse anticipates that which drug will be used to treat this condition?
- Spinosad (Natroba)
  - Nystatin (Mycostatin)
  - Acyclovir (Zovirax)
  - Mupirocin (Bactroban)

ANS: D

Mupirocin (Bactroban) is used on the skin for treatment of staphylococcal and streptococcal impetigo. Spinosad (Natroba) is used for pediculosis; nystatin is an antifungal drug; and acyclovir is an antiviral drug.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

6. A 55-year-old obese patient was diagnosed with candidiasis in the skin folds under her breasts. When the nurse sees her at a follow-up visit 2 months later, she complains that it has returned. She said she applied the medicine for 1 week and stopped because the itching stopped and the cream was messy. Which statement is true regarding fungal infections of the skin?
- Fungal infections often require prolonged therapy.
  - The patient has a new infection now.
  - The patient needs to apply a dressing if the cream is too messy.
  - This infection will probably never be cured.

ANS: A

Topical fungal infections are difficult to treat and may require prolonged therapy of several weeks to as long as 1 year. Occlusive dressings should not be applied unless recommended by the medication's manufacturer.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

7. A female patient will be starting therapy with oral isotretinoin (Amnesteem) as part of treatment for severe acne, and the nurse is providing teaching. Which teaching point will the nurse include in her teaching plan about isotretinoin?
- “You will have to use two contraceptive methods while on this drug.”
  - “You must avoid sexual activity while on this drug.”
  - “You will have to avoid pregnancy for 2 weeks after taking this drug.”
  - “If you are taking an oral contraceptive, you may take this drug.”

ANS: A

It is now required that at least two contraceptive methods be used by sexually active women during and for 1 month after completion of therapy with isotretinoin. The other statements are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

8. A patient is admitted to the hospital for possible septicemia. He has a large pressure ulcer on his heel that is open and includes necrotic tissue. However, his prothrombin time/international normalized ratio (PT/INR) values are too high to permit surgical débridement at this time. The nurse expects that which wound-care product will be used to treat the wound?
- Cadexomer iodine (Iodosorb)
  - Biafine topical emulsion
  - Povidone-iodine (Betadine)
  - Collagenase (Santyl)

ANS: D

Because this patient has an elevated PT/INR, he cannot receive surgical débridement because of concerns about excessive bleeding. Collagenase is useful for patients taking anticoagulants and for those in whom surgery is contraindicated; it selectively removes necrotic tissue but does not harm normal tissue. Cadexomer iodine is not appropriate for a wound with necrotic tissue. Betadine is used as a skin cleanser; biafine is indicated for radiation dermatitis.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. The nurse is reviewing laboratory results for a patient and notes that the patient has positive results for nasal colonization by methicillin-resistant *Staphylococcus aureus* (MRSA). The nurse anticipates an order for which medication?
- Acyclovir (Zovirax)
  - Mupirocin (Bactroban)
  - Clindamycin (Cleocin T)
  - Clotrimazole (Lotrimin)

ANS: B

Mupirocin (Bactroban) is used on the skin for treatment of staphylococcal and streptococcal impetigo. It is used topically and intranasally to treat nasal colonization by MRSA; however, it MRSA is becoming increasingly resistant to the drug. The other options are incorrect. Acyclovir (an antiviral drug) and clindamycin are not indicated for the treatment of MRSA; clotrimazole is an antifungal drug.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse is reviewing the medical record of a patient who is to receive wound care with topical silver sulfadiazine (Silvadene). Which finding, if noted, would be a potential contraindication?
- The patient has an open wound from a burn on her arm.
  - The patient is allergic to sulfonamide drugs.
  - The patient is allergic to shellfish.
  - The patient's burn wound has been débrided.

ANS: B

Patients with allergies to sulfonamide drugs must not receive silver sulfadiazine. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

11. A patient is considering taking oral aloe supplements and asks the nurse about potential problems with this therapy. Which statement by the nurse is correct?
- "Aloe is not taken orally; it is only used topically to aid in wound healing."
  - "Aloe is used by some to treat constipation; it may cause diarrhea."
  - "This is a safe herbal supplement, with no known drug interactions."
  - "This is a safe herbal supplement, with no known adverse effects."

ANS: B

The dried juice of the leaves of the aloe plant contains anthranoids, which give aloe a laxative effect when taken orally. The topical application of the plant juice has been known for years to help the healing of wounds. Common adverse effects include diarrhea, nephritis, abdominal pain, and dermatitis when used topically. Potential drug interactions include digoxin, antidysrhythmics, diuretics, and corticosteroids.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Physiological Adaptation

12. A female patient has been taking isotretinoin (Amnesteem) for 3 months. During a follow-up appointment, which statement by the patient would be of highest concern to the nurse?
- "I am using two forms of contraception while on this drug."
  - "I have been feeling rather down and lonely lately."
  - "I wish I didn't have to be on this medication."
  - "It's scary to know that this drug can cause birth defects."

ANS: B

There have been case reports of suicide and suicide attempts in patients receiving isotretinoin. Instruct patients to report immediately to their prescribers any signs of depression. Follow-up treatment may be needed, and simply stopping the drug may be insufficient.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## MULTIPLE RESPONSE

1. Which adverse effects will the nurse expect in a teenage patient who is using topical tretinoin (Retin-A)? (*Select all that apply.*)
  - a. Crusted skin
  - b. Itching
  - c. Altered skin pigmentation
  - d. Rosacea
  - e. Red and edematous blisters

ANS: A, C, E

Some of the most common adverse effects of tretinoin are excessively red and edematous blisters, crusted skin, and temporary alterations in skin pigmentation. Itching and rosacea are not potential adverse effects.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. A patient has a prescription for topically applied 5% fluorouracil (Efudex) cream as part of treatment for basal cell carcinoma on her cheek. Which instructions will the nurse provide to the patient? (*Select all that apply.*)
  - a. "You must use gloves to apply this medication."
  - b. "You can use clean fingertips to apply the cream, but be sure to wash your hands afterward."
  - c. "You will need to stay out of the sun during therapy with this medication."
  - d. "Apply this medication to the affected site once a day in the evening."
  - e. "Apply this medication to the affected site twice daily."
  - f. "You may have swelling, scaling, burning, and tenderness in the affected area."

ANS: B, C, E, F

Fluorouracil may be applied with gloves or clean fingertips, but if fingertips are used, the medication must be washed off thoroughly after application. The medication may cause photosensitivity, as well as local swelling, scaling, burning, and tenderness. The medication is applied twice daily.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A child is being treated for head lice with spinosad (Natroba). Which of these statements about treatment with spinosad is true? (*Select all that apply.*)
- a. "You will need a prescription for a second product, malathion."
  - b. "You will also need to decontaminate clothes and personal items."
  - c. "Be sure to use a nit comb to remove nits from the hair shafts."
  - d. "Try combing through the hair with mineral oil to loosen the lice from the hair shafts."
  - e. "It is not necessary to comb the nits when using spinosad."

ANS: B, E

The clothing and personal articles of the infested person must be decontaminated. This is best accomplished by washing them in hot, soapy water or by dry cleaning them. Spinosad offers the benefit of not requiring nit combing as do the other treatments, and is a single treatment drug. It is not necessary to comb the hair with mineral oil.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

## Chapter 57: Ophthalmic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse will be giving ophthalmic drugs to a patient with glaucoma. Which drug is given intravenously to reduce intraocular pressure when other medications are not successful?
  - a. Tobramycin (Tobrex)
  - b. Bacitracin (AK-Tracin)
  - c. Mannitol (Osmitrol)
  - d. Ketorolac (Acular)

ANS: C

Drugs used to reduce intraocular pressure include osmotic diuretics such as mannitol, which is given intravenously. Tobramycin and bacitracin are antibiotics; ketorolac has antiinflammatory actions.

DIF: Cognitive Level: Remembering (Knowledge)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

2. The nurse is reviewing the use of ophthalmic preparations. Indications for the direct- and indirect-acting miotics include which condition?
  - a. Cataracts
  - b. Removal of foreign bodies
  - c. Open-angle glaucoma
  - d. Ocular infections

ANS: C

Indications for the direct- and indirect-acting miotics include open-angle glaucoma, angle-closure glaucoma, ocular surgery, and convergent strabismus.

DIF: Cognitive Level: Remembering (Knowledge)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. A patient has a new prescription for an antiglaucoma eyedrop. The next day, she calls the clinic and states, "The package insert says this medication might make my blue eyes turn brown! Is this true?" The nurse realizes that the patient has a prescription for which eye medication?
  - a. Latanoprost (Xalatan), a prostaglandin agonist
  - b. Dorzolamide (Trusopt), an ocular carbonic anhydrase inhibitor
  - c. Betaxolol (Betoptic), a direct-acting beta blocker
  - d. Pilocarpine (Pilocar), a direct-acting cholinergic

ANS: A

There is one unique adverse effect associated with all prostaglandin agonists—in some people with hazel, green, or bluish-brown eye color, eye color will turn permanently brown, even if the medication is discontinued. This adverse effect appears to be cosmetic only, with no known ill effects on the eye. The other medications do not have this effect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

4. A patient has been taking the corticosteroid dexamethasone (Decadron) but has developed bacterial conjunctivitis and has a prescription for gentamicin (Garamycin) ointment. The nurse notes that which interaction is possible if the two drugs are used together?
- The infection may become systemic.
  - The gentamicin effects may become more potent.
  - The corticosteroid may cause overgrowth of nonsusceptible organisms.
  - Immunosuppression may make it more difficult to eliminate the eye infection.

ANS: D

Concurrent use of corticosteroids, such as dexamethasone, and ophthalmic antimicrobials, may cause immunosuppression that may make it more difficult to eliminate the eye infection.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

5. When teaching a patient about the proper application of eyedrops, the nurse will include which instruction?
- “Apply the drops into the conjunctival sac instead of directly onto the eye.”
  - “Apply the drops directly to the eyeball (cornea) for the best effect.”
  - “Blot your eye with a tissue immediately after applying the drops.”
  - “Tilt your head forward before applying the eyedrops.”

ANS: A

All ophthalmic drugs should be administered in the conjunctival sac. Gently use a tissue to remove excess eye medication—do not blot the eye after giving the medication. Tilt the head *back* before giving the eyedrops.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

6. A patient is about to undergo ocular surgery. The preoperative nurse anticipates that which drug will be used for local anesthesia?
- Oral glycerin
  - Proparacaine (Alcaine)
  - Timolol (Timoptic)
  - Dipivefrin (Propine)

ANS: B

Proparacaine (Alcaine) and tetracaine are used as a local anesthetic for ocular surgery or other procedures. The other drugs are used for glaucoma.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. A patient with an eye injury requires an ocular examination to detect the presence of a foreign body. The nurse anticipates that which drug will be used for this examination?
- Phenylephrine (Neo-Synephrine)
  - Fluorescein sodium (AK-Fluor)
  - Atropine sulfate (Isopto Atropine)
  - Olopatadine (Patanol)

ANS: B

Fluorescein sodium is an ophthalmic diagnostic dye used to identify corneal defects and to locate foreign objects in the eye. Phenylephrine is an ocular decongestant; atropine sulfate has mydriatic and cycloplegic effects, which are useful for examining the inner eye structures; olopatadine is an ophthalmic antihistamine.

DIF: Cognitive Level: Understanding (Comprehension)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. The nurse is administering antibiotic eyedrops to a patient for the first time. After the first drop is given, the patient states, "That eyedrop is making my eye sting! Is that normal?" Which is the best response by the nurse?
- "That's unusual. Let me rinse the medication from your eye."
  - "Sometimes these eyedrops may cause burning and stinging, but it should go away soon."
  - "These may be serious side effects, so I will notify your doctor before the next dose is due."
  - "Let's wait and see if these effects happen the next time you receive these drops."

ANS: B

Ocular antibiotics may cause local inflammation, burning, stinging, urticaria, and dermatitis. These effects are transient. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

9. A patient is receiving ocular cyclosporine (Restasis) and also has an order for an artificial tears product. The nurse includes which instructions in the teaching plan for these medications?
- "These two eye drugs cannot be given together. Let's check with your prescriber."
  - "You may take these two drugs together at the same time."
  - "First take the artificial tears, and then take the Restasis after 5 minutes."
  - "Take the Restasis first, and then wait 15 minutes before taking the artificial tears."

ANS: D

Restasis can be used together with artificial tears if the drugs are given 15 minutes apart. The other options are incorrect.



DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

10. The nurse is administering ophthalmic drops. Choose the action that should be performed *first*.
- Close the eye gently.
  - Apply gentle pressure to the inner canthus/lacrimal sac for 1 minute.
  - Place drops into the conjunctival sac.
  - Clean debris from the eye as needed.
  - Have the patient tilt the head back and look up at the ceiling.
  - Remove excess medication gently from around the eyes.

ANS: D

Before applying eye medications, clean any debris from the eye, if needed, and have the patient tilt the head back and look up at the ceiling. Drops are placed into the conjunctival sac, and then the eye is closed gently. Pressure may be applied to the inner canthus/lacrimal sac for 1 minute to reduce systemic absorption, and any excess medication can then be removed from around the eyes.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

### MULTIPLE RESPONSE

1. The nurse is reviewing the medical record of a patient and notes an order for ophthalmic dexamethasone (Decadron) solution. The nurse knows that indications for ophthalmic dexamethasone include which conditions? (*Select all that apply.*)
- Uveitis
  - Allergic conditions
  - Removal of foreign bodies
  - Ocular infections
  - Glaucoma
  - Conjunctival inflammation

ANS: A, B, C, F

Dexamethasone (Decadron) is used to treat inflammation of the eye, eyelids, conjunctiva, and cornea, and it may also be used in the treatment of uveitis, iridocyclitis, allergic conditions, and burns and in the removal of foreign bodies. It is not indicated for infections or glaucoma.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process:

Planning

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

### COMPLETION

1. A patient will be receiving mannitol (Osmitrol), 1.5 g/kg IV 1 hour before ocular surgery. The patient weighs 110 pounds. How many grams of mannitol will this patient receive for this dose? \_\_\_\_\_

ANS:

75 g

Convert the patient's weight to kilograms:  $110 \text{ pounds} \div 2.2 = 50 \text{ kg}$ .

Calculate the dose of mannitol:  $50 \text{ kg} \times 1.5 \text{ g/kg} = 75 \text{ g}$  of mannitol.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

## Chapter 58: Otic Drugs

### Lilley: Pharmacology and the Nursing Process, 9th Edition

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#### MULTIPLE CHOICE

1. The nurse is preparing to administer a new order for eardrops. Which is a potential contraindication to the use of many otic preparations?
  - a. Ear canal itching
  - b. Perforated eardrum
  - c. *Staphylococcus aureus* otitis externa infection
  - d. *Escherichia coli* ear infection

ANS: B

While some antibiotics can be used when an eardrum is perforated, neomycin, polymyxin B, and hydrocortisone otic preparations are contraindicated in patients with a perforated eardrum. Be sure to clarify whether the drug can be given if a perforated eardrum is present. The other options are potential indications for eardrops.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

2. The nurse is administering eardrops that contain a combination of an antibiotic and a corticosteroid. What is the rationale for combining these two drugs in eardrops?
  - a. The combination works to help soften and eliminate cerumen.
  - b. The corticosteroid reduces pain associated with ear infections.
  - c. The drops help to eliminate fungal infections.
  - d. The corticosteroid reduces the inflammation and itching associated with ear infections.

ANS: D

Corticosteroids, such as hydrocortisone, are commonly used in combination with otic antibiotics to reduce the inflammation and itching associated with ear infections. Antibiotics do not eliminate fungal infections. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

3. The nurse is teaching a patient's wife about administering eardrops to her husband. The nurse will use which technique when demonstrating the skill?
  - a. Pull the pinna of the ear down and back.
  - b. Pull the pinna of the ear up and back.
  - c. Pull the pinna of the ear down and forward.
  - d. Pull the pinna of the ear up and forward.

ANS: B

Hold the pinna of the ear up and back when giving eardrops to adults or children older than 3 years of age. The other options are incorrect.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

4. When reviewing a patient's medical record, the nurse notes an order for carbamide peroxide eardrops. Based on this information, the nurse interprets that these eardrops are being used for which purpose?
- To reduce inflammation
  - To reduce production of cerumen
  - To loosen the cerumen for easier removal
  - To inhibit growth of microorganisms in the external canal

ANS: C

Wax emulsifiers such as carbamide peroxide work to loosen the cerumen for easier removal. The other options are incorrect.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Assessment

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

5. The nurse is preparing to give an earwax emulsifier to a patient and will assess the patient for which contraindication before administering the drops?
- Allergy to penicillin
  - Drainage from the ear canal
  - Partial deafness in the affected ear
  - Excessive earwax in the outer ear canal

ANS: B

Earwax emulsifiers are indicated for excessive earwax in the outer ear canal and are not to be used without prescription when ear drainage, tympanic membrane rupture, or significant pain or other irritation is present. Cerumen impaction may cause partial deafness in the affected ear.

DIF: Cognitive Level: Applying (Application)  
Planning

TOP: Nursing Process:

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

6. The nurse is assessing a child with otitis media. Which statement about otitis media is correct?
- It is treated with over-the-counter medications.
  - In children, it commonly follows a lower respiratory tract infection.
  - Common symptoms include pain, fever, malaise, and a sensation of fullness in the ears.
  - Hearing deficits are associated only with inner ear infections, not with otitis media.

ANS: C

Otitis media is rarely treated with over-the-counter medications and commonly follows an upper respiratory tract infection in children. Hearing deficits may occur if prompt therapy is not started. Common symptoms include pain, fever, malaise, and a sensation of fullness in the ears.

DIF: Cognitive Level: Understanding (Comprehension)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

7. The nurse is administering eardrops that have been refrigerated. Which action by the nurse is correct before administering the drops?
- Leave the drops in the refrigerator until use.
  - Heat the chilled solution for 10 seconds in the microwave.
  - Soak the bottle for 60 seconds in a container of very hot water.
  - Take the drops out of the refrigerator 1 hour before the dose is due.

ANS: D

Give eardrops at room temperature. If the pharmacy indicates that the drug is to be refrigerated, it should be taken out of the refrigerator up to 1 hour before it is to be instilled so that it can warm up to room temperature. They are not to be placed in the microwave or soaked in hot water; eardrops that are overheated may lose potency. Administration of solutions that are too cold may cause a vestibular reaction that includes vomiting and dizziness. If the solution has been refrigerated, allow it to warm to room temperature.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies

8. What teaching by the nurse is important for the safety of the patient who had just received eardrops?
- Remain supine or sitting for a few minutes after receiving the drops.
  - Be sure to use a heating pad on the affected side.
  - Keep in mind that nausea may occur after eardrops are instilled.
  - Use a cotton-tipped swab to keep the ear canal clean.

ANS: A

Warn the patient that dizziness may occur after application of the eardrops; the patient should remain supine or sitting during instillation and for a few minutes thereafter. The other options are not correct.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

## MULTIPLE RESPONSE

1. The nurse is teaching a patient about proper administration of eardrops. Which statements are correct? (*Select all that apply.*)
- Remove cerumen with a cotton-tipped swab before instilling the drops.
  - Instill the drops while still cool from refrigeration.
  - Warm the eardrops to room temperature before instillation.
  - The adult patient should pull the pinna of the ear up and back.
  - Insert a dry cotton ball gently into the ear canal after instillation.
  - Massage the earlobe after instillation.

ANS: C, D, E

Remove cerumen before instillation by irrigation, not with cotton-tipped swabs. The drops must be at room temperature; cold drops may cause dizziness or other discomfort. Hold the pinna of the ear up and back when giving eardrops to adults or children older than 3 years of age. A small cotton ball may be inserted gently into the ear canal to keep the drug in place, but do not force or jam it into the ear canal. Gentle massage to the tragus area of the ear (not the earlobe) may also help to increase coverage of the medication after it is given.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Safe and Effective Care Environment: Management of Care

2. A child has been diagnosed with bacterial otitis externa and will be receiving eardrops. Which of these eardrops are appropriate for this infection? (*Select all that apply.*)
- a. Floxin Otic
  - b. Cortic
  - c. Debrox
  - d. Acetasol HC
  - e. Cipro HC Otic

ANS: A, E

Both Floxin Otic and Cipro HC Otic are antibacterial eardrops. Cipro HC also contains a corticosteroid. Both Cortic and Acetasol HC are antifungal products; Debrox (carbamide peroxide) is an earwax emulsifier used to loosen earwax for easier removal.

DIF: Cognitive Level: Applying (Application)

TOP: Nursing Process: Implementation

MSC: NCLEX: Physiological Integrity: Pharmacological and Parenteral Therapies