Answer: C
Rationale: The trough level represents the lowest concentration of the drug in the bloodstream. It is measured immediately (usually 15–30 minutes) before the next scheduled dose.

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8. A nurse is preparing to administer an intramuscular (IM) injection to an adult client who has a BMI of 32. Which needle length should the nurse select?

A. 5/8 inch
B. 1 inch
C. 1 1/2 inches
D. 2 inches

Answer: C
Rationale: For an obese client, a longer needle (1.5 inches) is required to ensure the medication reaches the muscle tissue rather than staying in the subcutaneous fat.

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9. A nurse is preparing to administer phenobarbital to a client. Which pharmacokinetic concept explains why this drug has a long duration of action?

A. First-pass effect
B. High lipid solubility
C. Protein binding
D. Half-life

Answer: D
Rationale: Half-life is the time it takes for the concentration of a drug in the body to reduce by 50%. Phenobarbital has a long half-life, meaning it stays in the system longer and requires less frequent dosing.

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10. A nurse is teaching a client about the "First-pass effect." Which route of administration is most affected by this process?

C. "I should report any adverse effects to my provider."
D. "I should keep a list of all my medications with me."

Answer: B
Rationale: Clients should never stop taking a prescribed medication without consulting their provider, especially for medications that treat chronic conditions. Abrupt discontinuation can lead to serious complications.

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21. A nurse is preparing to administer a medication via the enteral route. Which of the following should the nurse do first?

A. Verify the client's identity using two identifiers
B. Check the medication administration record
C. Perform hand hygiene
D. Administer the medication with water

Answer: C
Rationale: Hand hygiene is the first step in the medication administration process to prevent the spread of infection. The nurse should then verify the client's identity, check the MAR, and follow the six rights of medication administration.

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22. A nurse is reviewing the medication administration record for a client who is prescribed a medication with a high first-pass effect. The nurse understands that this medication:

A. Should be administered orally for best effect
B. Should be administered parenterally for best effect
C. Should be administered with food
D. Should be administered on an empty stomach

Answer: B
Rationale: Medications with a high first-pass effect are extensively metabolized by the liver before reaching systemic circulation, reducing their bioavailability. These medications are often administered parenterally (IV, IM, subcut) to bypass the first-pass effect and achieve therapeutic levels.

23. A nurse is caring for a client who is receiving a medication that is known to cause photosensitivity. Which instruction should the nurse include in the client's teaching?

A. "Avoid sun exposure and wear protective clothing."
B. "Increase your intake of dairy products."
C. "Take the medication with grapefruit juice."
D. "Stop taking the medication if you develop a rash."

Answer: A
Rationale: Photosensitivity is an adverse effect of certain medications (e.g., tetracyclines, sulfonamides, amiodarone). Clients should be instructed to avoid sun exposure, wear protective clothing, and use sunscreen with SPF 30 or higher.

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24. A nurse is preparing to administer a medication to a client who has difficulty swallowing pills. Which action should the nurse take?

A. Crush all medications and mix with applesauce
B. Check with the pharmacist before crushing medications
C. Administer the medication with a full glass of water
D. Hold the medication and notify the provider

Answer: B
Rationale: Not all medications can be crushed (e.g., extended-release, enteric-coated, sublingual). The nurse should check with the pharmacist to determine which medications can be safely crushed or if alternative formulations are available.

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25. A nurse is explaining the concept of "loading dose" to a client. Which statement by the nurse is accurate?

A. "A loading dose is given to maintain therapeutic drug levels."
B. "A loading dose is given to rapidly achieve therapeutic drug levels."
C. "A loading dose is given to reduce the risk of adverse effects."
D. "A loading dose is given to prolong the half-life of the medication."

C. Hematocrit 45%
D. WBC 8,000/mm^3

Answer: A
Rationale: Gentamicin is an aminoglycoside which is nephrotoxic. An elevated creatinine level indicates potential kidney damage.

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43. A client has a new prescription for rifampin for the treatment of tuberculosis. Which finding should the nurse tell the client to expect?

A. Orange-colored urine and sweat
B. Severe muscle pain
C. Numbness in the fingers and toes
D. Double vision

Answer: A
Rationale: Rifampin causes a harmless reddish-orange discoloration of urine, sweat, saliva, and tears.

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44. A nurse is caring for a client with a history of a severe penicillin allergy. Which medication should the nurse clarify with the provider?

A. Ciprofloxacin
B. Gentamicin
C. Cefazolin
D. Erythromycin

Answer: C
Rationale: There is a risk of cross-sensitivity between penicillins and cephalosporins like cefazolin due to their similar beta-lactam structure.

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45. A client is receiving IV acyclovir. Which nursing intervention is most important to prevent renal damage?

A. Limit dietary protein
B. Administer the drug over 5 minutes
C. Monitor for hearing loss
D. Ensure the client is well hydrated

Answer: D
Rationale: Hydration helps prevent the crystallization of acyclovir in the renal tubules, which can lead to renal damage. The medication should be infused slowly over 1 hour with adequate hydration.

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46. A nurse is teaching a client about the use of an inhaled corticosteroid. What is the priority information to include?

A. The patient should be instructed to rinse their mouth after using the inhaler to prevent oral thrush.
B. The patient should use the inhaler before using a bronchodilator.
C. The patient should expect immediate relief of symptoms.
D. The patient should use the inhaler only during acute attacks.

Answer: A
Rationale: Inhaled corticosteroids can cause oral candidiasis (thrush). The patient should rinse their mouth with water after each use to prevent this adverse effect.

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47. A nurse is teaching a patient about the use of a transdermal nicotine patch. What should the nurse emphasize?

A. Apply the patch to the same site every day
B. Remove the patch before going to bed
C. Avoid using other nicotine products while using the patch
D. Apply the patch to hairy areas for better absorption

Answer: C
Rationale: The patient should avoid using other nicotine products (e.g., cigarettes, gum) while using the nicotine patch to prevent nicotine toxicity. The patch should be applied to a different site each day and removed at bedtime to prevent sleep disturbances.

C. Hypertension
D. Tachycardia

Answer: A
Rationale: Octreotide is a somatostatin analog that can cause gallbladder sludge and gallstones, as well as GI upset, bradycardia, and hypoglycemia (or hyperglycemia). Clients should be monitored with periodic gallbladder ultrasounds.

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89. A nurse is teaching a client about the administration of insulin. Which statement by the client indicates a need for further teaching?

A. "I will store my insulin pen at room temperature for up to 28 days."
B. "I will inject insulin into the same site every day."
C. "I will rotate injection sites to prevent lipodystrophy."
D. "I will check my blood glucose before meals."

Answer: B
Rationale: Insulin injection sites should be rotated to prevent lipodystrophy and ensure consistent absorption. Injecting into the same site every day can lead to poor absorption and unpredictable blood glucose levels.

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90. A client is prescribed methimazole. Which laboratory value should the nurse monitor?

A. Thyroid-stimulating hormone (TSH) and free T4
B. Serum potassium
C. Serum calcium
D. Liver function tests

Answer: A
Rationale: Methimazole is an antithyroid medication used to treat hyperthyroidism. The nurse should monitor TSH and free T4 levels to evaluate therapeutic response and adjust dosage. Liver function tests may also be monitored, but thyroid function tests are the primary monitoring parameters.

A. "Avoid alcohol while taking this medication."
B. "Take the medication with grapefruit juice."
C. "Stop the medication abruptly if you feel better."
D. "Increase your dose if you feel more anxious."

Answer: A
Rationale: Diazepam is a benzodiazepine that causes CNS depression. Alcohol should be avoided due to additive CNS depression. The medication should not be stopped abruptly (risk of withdrawal seizures) or taken with grapefruit juice (increases levels).

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109. A nurse is teaching a client about the adverse effects of SSRIs. Which adverse effect should the nurse include?

A. Sexual dysfunction
B. Hypertension
C. Weight loss
D. Bradycardia

Answer: A
Rationale: SSRIs commonly cause sexual dysfunction (decreased libido, delayed ejaculation, anorgasmia). Other adverse effects include nausea, insomnia, headache, and serotonin syndrome (with concurrent serotonergic drugs).

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110. A client is prescribed olanzapine. Which adverse effect should the nurse monitor for?

A. Weight gain and hyperglycemia
B. Weight loss and hypoglycemia
C. Hypertension and tachycardia
D. Bradycardia and hypotension

Answer: A
Rationale: Olanzapine is an atypical antipsychotic that commonly causes weight gain, hyperglycemia, and dyslipidemia. Clients should have baseline and periodic monitoring of weight, BMI, fasting glucose, and lipid panel.

A. It reverses opioid-induced respiratory depression.
B. It potentiates the effects of opioids.
C. It is used for long-term pain management.
D. It is administered orally.

Answer: A
Rationale: Naloxone is an opioid antagonist that reverses opioid-induced respiratory depression, sedation, and hypotension. It is administered IV, IM, or subcutaneously. Its duration of action is shorter than most opioids, so repeated doses or a continuous infusion may be needed.

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122. A client is prescribed acetaminophen. Which instruction should the nurse include?

A. "Do not exceed 4 grams per day."
B. "Take the medication with alcohol for better effect."
C. "Increase your dose if pain persists."
D. "Take the medication on an empty stomach."

Answer: A
Rationale: The maximum daily dose of acetaminophen is 4 grams (4000 mg) for adults. Exceeding this dose can cause hepatotoxicity. Clients should avoid alcohol while taking acetaminophen and should check other medications for acetaminophen content.

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123. A client is prescribed ibuprofen. Which adverse effect should the nurse monitor for?

A. Gastrointestinal bleeding
B. Hypertension
C. Bradycardia
D. Hypoglycemia

Answer: A
Rationale: Ibuprofen is an NSAID that can cause gastrointestinal bleeding, ulceration, and perforation. Clients should take it with food or milk to reduce GI upset. Other adverse effects include renal impairment and increased cardiovascular risk.

225. A client is prescribed 250 mL of D5W IV over 30 minutes. The drop factor is 20 gtt/mL. What is the flow rate in gtt/min?

A. 167 gtt/min
B. 125 gtt/min
C. 200 gtt/min
D. 150 gtt/min

Answer: A
Rationale: Flow rate = (250 mL × 20 gtt/mL) / 30 minutes = 5,000 / 30 = 166.7 gtt/min, rounded to 167 gtt/min.

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226. A nurse is preparing to administer insulin 15 units regular and 25 units NPH subcutaneously. Which action should the nurse take?

A. Draw up regular insulin first, then NPH
B. Draw up NPH insulin first, then regular
C. Draw up both insulins in separate syringes
D. Draw up both insulins in the same syringe after mixing

Answer: A
Rationale: When mixing regular and NPH insulin, the nurse should draw up regular insulin (clear) first, then NPH (cloudy) to prevent contamination of the regular insulin vial with NPH. "Clear before cloudy" is the rule.

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227. A client is prescribed 500 mL of 0.9% sodium chloride IV over 3 hours. The drop factor is 15 gtt/mL. What is the flow rate in gtt/min?

A. 42 gtt/min
B. 28 gtt/min
C. 35 gtt/min
D. 50 gtt/min

242. A nurse is preparing to administer magnesium sulfate 4 g IV. The medication is available as 500 mg/mL. How many mL should the nurse administer?

A. 8 mL
B. 4 mL
C. 6 mL
D. 10 mL

Answer: A
Rationale: 4 g = 4000 mg. 4000 mg ÷ 500 mg/mL = 8 mL.

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243. A client is prescribed 1,000 mL of D5W IV over 10 hours. The drop factor is 10 gtt/mL. What is the flow rate in gtt/min?

A. 17 gtt/min
B. 10 gtt/min
C. 20 gtt/min
D. 25 gtt/min

Answer: A
Rationale: Flow rate = (1000 mL × 10 gtt/mL) / (10 × 60 minutes) = 10,000 / 600 = 16.7 gtt/min, rounded to 17 gtt/min.

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244. A nurse is preparing to administer fosphenytoin 500 mg PE IV. The medication is available as 50 mg PE/mL. How many mL should the nurse administer?

A. 10 mL
B. 5 mL
C. 15 mL
D. 20 mL

Answer: A
Rationale: 500 mg PE ÷ 50 mg PE/mL = 10 mL.
