

## Chapter 3: Drug Action Across the Life Span Test Bank

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### MULTIPLE CHOICE

1. What time will the trough blood level need to be drawn if the nurse administers the intravenous medication dose at 9:00 AM?
  - a. 6:30 AM
  - b. 8:30 AM
  - c. 9:30 AM
  - d. 11:30 AM

ANS: B

Trough blood levels measure the lowest blood level of medicine and are obtained just before the dose is administered. In this case, 6:30 AM is too early to obtain the blood level. The other two times occur after the medication is administered.

DIF: Cognitive Level: Application      REF: p. 26      OBJ: 3  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Physiological Integrity

2. What will the nurse expect the health care provider's order to be when starting an older adult patient on thyroid hormone replacement therapy?
  - a. Administering a loading dose of the drug
  - b. Directions on how to taper the drug
  - c. A dosage that is one third to one half of the regular dosage
  - d. A dosage that is double the regular dosage

ANS: C

To prevent toxicity, dosages for new medications in older adults should be one third to one half the amount of a standard adult dosage. Loading doses of drugs could cause severe toxicity. Tapering off is characteristic of discontinuation of medications and is not appropriate for this situation. Older adults generally need a lower medication dosage than younger patients.

DIF: Cognitive Level: Application      REF: p. 29      OBJ: 3  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Physiological Integrity

3. Which drugs cause birth defects?
  - a. Teratogens
  - b. Carcinogens
  - c. Metabolites
  - d. Placebos

ANS: A

Teratogens are drugs that cause birth defects. Carcinogens cause cancer. Metabolites are the end product of metabolism. Placebos are drugs that have no pharmacologic activity.

DIF: Cognitive Level: Knowledge      REF: p. 30      OBJ: 6  
TOP: Nursing Process Step: Assessment

MSC: NCLEX Client Needs Category: Physiological Integrity

4. Which life threatening illness may occur as a result of aspirin (salicylate) administration during viral illness to patients younger than 20 years of age?
- Anaphylactic shock
  - Reye's syndrome
  - Chickenpox
  - Influenza A

ANS: B

Children are susceptible to Reye's syndrome if they ingest aspirin at the time of or shortly after a viral infection of chickenpox or influenza. Anaphylactic shock is caused by a hypersensitivity reaction. Chickenpox is the result of being infected with a virus. Influenza A is caused by a pathogen.

DIF: Cognitive Level: Knowledge REF: pp. 27-28 OBJ: 3  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Physiological Integrity

5. Which classification of medications commonly causes allergic reactions in children?
- Antacids
  - Analgesics
  - Antibiotics
  - Anticonvulsants

ANS: C

Antibiotics, especially penicillins, commonly cause allergic reactions in children. Intravenous antibiotics can cause rapid reactions; therefore, the pediatric patient's response to a medication should be assessed and monitored closely. Antacids rarely cause allergic reactions. Children are not particularly allergic to analgesics or anticonvulsants.

DIF: Cognitive Level: Knowledge REF: p. 28 OBJ: 3  
TOP: Nursing Process Step: Assessment  
MSC: NCLEX Client Needs Category: Physiological Integrity

6. After giving instructions to an expectant mother about taking medications during pregnancy, which patient statement indicates the need for further teaching?
- "I will not take herbal medicines during pregnancy."
  - "For morning sickness, I will try crackers instead of taking a drug."
  - "If I get a cold, I will avoid taking nonprescription medications until I check with my physician."
  - "I will limit my alcohol intake to only one glass of wine weekly."

ANS: D

Alcohol needs to be eliminated during pregnancy and for 2 to 3 months prior to conception. Limited studies are available regarding the use of herbal medications in general, and thus they should be avoided during pregnancy. Alternative nonpharmacologic treatments are appropriate to use during morning sickness. The pregnant woman should also avoid using nonprescription drugs because few data are available about safe use in pregnancy. Because few medicines can be considered completely safe for use in pregnancy, the physician needs to approve and recommend the use of nonprescription drugs.

DIF: Cognitive Level: Application REF: p. 30 OBJ: 6  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Health Promotion and Maintenance

7. When is the ideal time for a nursing mother to take her own medications?
- Before the infant latches on to begin to breastfeed
  - As soon as the mother wakes up in the morning
  - Right before the mother goes to sleep at night
  - As soon as the infant finishes breastfeeding

ANS: D

Taking medications after breastfeeding reduces the amount of the medication that will reach the baby. Medications taken directly before breastfeeding may have a high concentration in the milk and possibly pass on to the baby. The mother must take into consideration when her medications are ordered to be taken, and schedule them around breastfeeding.

DIF: Cognitive Level: Comprehension REF: p. 31 OBJ: 6  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Health Promotion and Maintenance

8. Which age-related change would affect transdermal drug absorption in geriatric patients the most?
- Difficulty swallowing
  - Diminished kidney function
  - Changes in pigmentation
  - Altered circulatory status

ANS: D

The decreased circulation that occurs with aging will affect transdermal drug absorption. Difficulty swallowing would not affect transdermal drugs being absorbed. Kidney function affects drug excretion. Changes in pigmentation would not affect transdermal drug absorption.

DIF: Cognitive Level: Application REF: p. 22 OBJ: 3  
TOP: Nursing Process Step: Assessment  
MSC: NCLEX Client Needs Category: Physiological Integrity

9. Which intervention would be considered to reduce accumulation of a drug in a patient who has decreased liver function?
- Decreasing the time interval between dosages
  - Reducing the dosage
  - Administering the medication intravenously
  - Changing the drug to one that has a longer half life

ANS: B

Dosages must be reduced to prevent accumulation. Decreasing the time interval between dosages would increase the accumulation of the drug. The intravenous route has the fastest absorption and with liver dysfunction would increase the accumulation of the drug. A similar drug with a longer half life would stay in the system longer; with impaired liver function, the result would be increased accumulation.

DIF: Cognitive Level: Comprehension REF: p. 24 OBJ: 3  
TOP: Nursing Process Step: Planning

MSC: NCLEX Client Needs Category: Physiological Integrity

10. The nurse is teaching an elderly patient with difficulty swallowing about his medications. Which explanation by the nurse is most helpful?
- “Enteric coated tablets can be crushed and taken with applesauce.”
  - “Tablets that are scored can be broken in half.”
  - “Medications labeled ‘SR’ can be crushed.”
  - “Avoid taking medications in liquid form.”

ANS: B

It is acceptable to break scored tablets in half to facilitate swallowing of the medication. Enteric coated tables should never be crushed because of the effect on the absorption rate and potential for toxicity. Medications labeled “SR” indicate “sustained release” and should not be crushed because of the effect on the absorption rate. Medication in liquid form may be easier to swallow.

DIF: Cognitive Level: Application REF: p. 29 OBJ: 3  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Health Promotion and Maintenance

11. The nurse is administering an antibiotic intravenously. Which blood level determines the lowest amount of medication present in the patient?
- Peak
  - Serum
  - Therapeutic
  - Trough

ANS: D

The lowest amount of a medication in the blood is the trough. The peak is the highest amount of medication in the blood. Serum level identifies the amount of medication present. Therapeutic levels identify the range in which a medication is effective.

DIF: Cognitive Level: Knowledge REF: p. 26 OBJ: none  
TOP: Nursing Process Step: Assessment  
MSC: NCLEX Client Needs Category: Physiological Integrity

12. Which patient would the nurse identify as having the lowest rate of absorption of enteral medications?
- A 5-year-old boy
  - An 18-year-old woman
  - A 55-year-old man
  - An 85-year-old woman

ANS: A

Males’ stomachs empty more rapidly; children have increased motility, resulting in decreased absorption time. As one gets older, gastrointestinal (GI) motility is decreased, allowing for increased absorption time; women have slower gastric emptying, resulting in more time for absorption. Males’ stomachs empty more rapidly; however, as one gets older, GI motility is decreased, resulting in an increase in absorption time. As one gets older, GI motility is decreased, allowing for increased absorption time; women have slower gastric emptying, resulting in more time for absorption.

DIF: Cognitive Level: Application REF: pp. 20-21 OBJ: 3 | 4  
TOP: Nursing Process Step: Assessment  
MSC: NCLEX Client Needs Category: Physiological Integrity

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

ANS: B

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

DIF: Cognitive Level: Knowledge REF: p. 22 OBJ: 2  
TOP: Nursing Process Step: Assessment  
MSC: NCLEX Client Needs Category: Physiological Integrity

14. Which patient, when compared with the general population, would require a larger dose or more frequent administration of a drug to attain a therapeutic response?
- A 29 year old who has been diagnosed with kidney failure
  - A 35 year old obese male who is being evaluated for an exercise program
  - A 52 year old diagnosed with hypothyroidism and decreased metabolic rate
  - A 72 year old with decreased circulatory status

ANS: B

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

DIF: Cognitive Level: Application REF: p. 20 OBJ: 3  
TOP: Nursing Process Step: Assessment  
MSC: NCLEX Client Needs Category: Physiological Integrity

15. A resident in a long term care facility reports difficulty swallowing enteric coated aspirin and asks the nurse to crush it prior to administration. The most appropriate action for the nurse to take is to:
- crush the tablet and mix with applesauce.
  - encourage the resident to swallow the tablet with a full glass of water.
  - hold the medication and notify the physician.
  - substitute a regular aspirin for the enteric coated tablet.

ANS: C

The medication should be held and the physician notified. The physician has the authority to determine how to proceed in this situation. Enteric coated tablets should not be crushed because this will increase the absorption rate and the potential for toxicity. Geriatric patients may have difficulty swallowing and are at risk for choking and aspiration. They should not be encouraged to swallow medications if they report difficulty swallowing. The physician must determine if a substitution can be ordered. Prescribing is not in the nurse's scope of practice.

DIF: Cognitive Level: Analysis                      REF: p. 22                      OBJ: 3  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Physiological Integrity

## MULTIPLE RESPONSE

16. One of the prescribed medications for a 36 week gestational age baby girl is a topical water soluble medication to be applied to the perineum daily to treat an inflammatory rash. What considerations is the nurse aware of before medication administration? (*Select all that apply.*)
- Age of the client
  - Location of topical application
  - Increased intestinal transit rate
  - Condition of the skin
  - Gastric pH of 8

ANS: A, B, D

The premature infant's outer layer of skin is not fully developed, although it is more hydrated, which will enhance the absorption of the topical water soluble medication. Neonates often wear diapers, which will act as an occlusive dressing, thereby increasing absorption. The client's inflammatory condition will increase the absorption of medication. The intestinal transit rate increases as the newborn matures. This is irrelevant when a medication is applied topically. Gastric pH would not factor into metabolism of a medication that is applied topically.

DIF: Cognitive Level: Application                      REF: p. 20 | p. 22                      OBJ: 3  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Physiological Integrity

17. The nurse is caring for a 4 month old child who is on a water soluble medication for seizures. The child's mother voices concern that the dosage seems "too much" for the child's age and would like the dosage verified. What actions will the nurse take? (*Select all that apply.*)
- Verify dosage requirements in the *Physicians' Desk Reference (PDR)* in mg/kg.
  - Compare the water composition requirements of adults and children.
  - Evaluate lean body mass and total fat content in adults and infants.
  - Chart "refused per mother" on the MAR and do not administer.
  - Compare transportation in the circulation of plasma bound proteins between adults and children.

ANS: A, B

The *PDR* lists the recommended dosages for all age groups. Because dilution may vary among age groups, the water concentration should be verified prior to administration. As we age, lean body mass and total body water decrease while total fat content increases; however, this drug is not fat soluble. The nurse is responsible for administering the medication as ordered after verifying that it is correct; the mother is asking for verification, not refusal of administration. Drugs that are relatively insoluble are transported in the circulation by being bound to plasma proteins; however, this drug is water soluble.

DIF: Cognitive Level: Application      REF: p. 27      OBJ: 3  
TOP: Nursing Process Step: Implementation  
MSC: NCLEX Client Needs Category: Physiological Integrity

18. For which reason(s) is/are elderly patients at increased risk for drug interactions and toxicity? (*Select all that apply.*)
- They have a higher incidence of malnourishment.
  - Their renal function is enhanced.
  - They have increased use of multiple medications.
  - Hepatic function is reduced.
  - There are often issues with swallowing.

ANS: A, C, D

Older adult patients have an increased incidence of malnourishment, are often on multiple medications, and have reduced hepatic function, all of which puts them at increased risk for drug interactions and toxicity. Renal function diminishes in the elderly as a result of decreased renal blood flow, reduced cardiac output, loss of glomeruli, and diminished tubular function and concentrating ability. Older adults have swallowing difficulties, leading to compliance issues, but taking drugs less often would not result in toxicity.

DIF: Cognitive Level: Comprehension      REF: p. 28      OBJ: 3  
TOP: Nursing Process Step: Assessment  
MSC: NCLEX Client Needs Category: Physiological Integrity

19. Which patient(s) require(s) special considerations for medication administration? (*Select all that apply.*)
- A 29-year-old pregnant woman
  - A 2-month-old baby
  - An 18-year-old college student
  - A 45-year-old farmer
  - An 82-year-old retired nurse

ANS: A, B, E

Drug therapy during pregnancy should be avoided. Recommendations by the provider are necessary during any stage of pregnancy. Pediatric and elderly patients are affected by differences in muscle mass and blood flow to muscles, as well as other physiological systems. Teenagers and adult patients do not typically require special considerations for medication administration.

DIF: Cognitive Level: Application      REF: pp. 20-21      OBJ: 3 | 4 | 5 | 6  
TOP: Nursing Process Step: Planning  
MSC: NCLEX Client Needs Category: Physiological Integrity

20. Which factor(s) in a patient would influence GI absorption of medications? (*Select all that apply.*)
- Stomach pH
  - Level of consciousness
  - Fever
  - Blood flow to gastric mucosa
  - Weight
  - Body surface area

ANS: A, D

Absorption by passive diffusion across the membranes depends on the pH of the environment. Increased blood flow to gastric mucosa increases absorption of medication and decreases time of absorption. Drug absorption does not depend on the mental status of the patient. Fever does not affect drug absorption. The patient's absolute weight and body surface area do not affect drug absorption, although problems associated with weight greater than or less than normal may be a factor in the process.

DIF: Cognitive Level: Application REF: p. 22 OBJ: 3

TOP: Nursing Process Step: Assessment

MSC: NCLEX Client Needs Category: Physiological Integrity

21. When receiving a report on a new admission from the emergency room, the nurse learns that the patient is newly diagnosed with renal failure. Which medication(s) in the patient's medication history will require dosage adjustment by the physician? (*Select all that apply.*)
- Lithium
  - Tobramycin
  - Atenolol
  - Quinidine
  - Ampicillin

ANS: A, B, C, D, E

Lithium, tobramycin, atenolol, quinidine, and ampicillin are all select medications that require dosage adjustment in renal failure.

DIF: Cognitive Level: Application REF: p. 26 OBJ: 3

TOP: Nursing Process Step: Assessment

MSC: NCLEX Client Needs Category: Physiological Integrity

22. Prenatal education is being provided by the nurse at a maternal family child clinic. What information should be relayed? (*Select all that apply.*)
- Herbal medicines are considered safe.
  - Limit tobacco consumption to less than two cigarettes per day.
  - Encourage a folic acid supplement.
  - One alcoholic beverage per day is acceptable in the last trimester.
  - Encourage nonpharmacologic treatments for symptoms such as nausea.

ANS: C, E



Good nutrition with appropriate ingestion of vitamins (especially folic acid) is particularly important during pregnancy to prevent birth defects. Before using medicines, pregnant women should be encouraged to try nonpharmacologic treatments. Herbal medicines that have not been scientifically tested in women during pregnancy should be avoided. Advise against the use of tobacco. Mothers who smoke have a higher frequency of miscarriage, stillbirths, premature births, and low birth weight infants. Consumption of alcohol should be eliminated 2 to 3 months before planned conception, as well as during pregnancy.

DIF: Cognitive Level: Application      REF: pp. 30-31      OBJ: 6  
TOP: Nursing Process Step: Planning  
MSC: NCLEX Client Needs Category: Health Promotion and Maintenance