Chapter 9: Antiinfective Medications
Edmunds: Introduction to Clinical Pharmacology, 8th Edition

MULTIPLE CHOICE

1. Which term refers to an antibiotic with a high degree of activity against many different organisms?
   a. Antimicrobial
   b. Antimycotic
   c. Broad-spectrum
   d. Bacteriostatic

   ANS: C
   Drugs that are effective against a variety of organisms are called broad-spectrum antibiotics.

   DIF: Cognitive Level: Remember REF: p. 150 OBJ: 6
   TOP: Antiinfective Agents KEY: Nursing Process Step: N/A
   MSC: NCLEX: Safe, Effective Care Environment: Safety and Infection Control

2. Each infection must be carefully evaluated to determine the specific causative organism and the therapy that will be most effective against it. How is this usually done?
   a. Stool examination
   b. Scraping of lesions
   c. Incubation of discharge from lesions
   d. Culture and sensitivity studies

   ANS: D
   The organisms must be carefully cultured and tested to see which medications are effective against them (medication sensitivity). Blood must be drawn for culture and sensitivity studies before any drug is started or the cultures will not be accurate.

   DIF: Cognitive Level: Remember REF: p. 152 OBJ: 1
   TOP: Pathogenic Organisms KEY: Nursing Process Step: Diagnosis
   MSC: NCLEX: Safe, Effective Care Environment: Safety and Infection Control

3. The nurse is teaching a patient about possible side effects when taking minocycline, a broad-spectrum antibiotic. Which side effect is the most common with this drug?
   a. Salty taste in the mouth
   b. Feeling of vertigo
   c. Edema in the feet and legs
   d. Ringing in the ears

   ANS: B
   Vertigo may develop with the use of any of the tetracyclines; however, vertigo is more common with the use of minocycline.

DIF: Cognitive Level: Remember REF: p. 158 OBJ: 3
TOP: Broad-Spectrum Antibiotics KEY: Nursing Process Step: Implementation
MSC: NCLEX: Physiological Integrity

4. Which medication interferes with an important life process of a bacterial organism, making it weaker or incapable of reproducing?
   a. Pathogenic
   b. Bacteriostatic
   c. Bactericidal
   d. Microbial

   ANS: B
   Agents that limit or slow the growth of the bacteria, weaken the wall, and lead to death are called *bacteriostatic*.

   DIF: Cognitive Level: Remember REF: p. 150 OBJ: 2
   TOP: Bacteriostatic Agents KEY: Nursing Process Step: N/A
   MSC: NCLEX: N/A

5. Which are broad-spectrum antibiotics?
   a. Tetracycline, erythromycin, and aminoglycosides
   b. Streptomycin, rifampin, and isoniazid
   c. Nystatin, griseofulvin, and ketoconazole
   d. Quinacrine, mebendazole, and pyrantel

   ANS: A
   Broad-spectrum antibiotics represent a very large grouping of unrelated drugs used to treat infections caused by a variety of susceptible organisms.

   DIF: Cognitive Level: Understand REF: pp. 153-154 | Table 9-2 | p. 159| Table 9-4
   OBJ: 2 TOP: Broad-Spectrum Antibiotics KEY: Nursing Process Step: N/A
   MSC: NCLEX: N/A

6. The highest therapeutic blood range for antibiotics is determined at the _____ of the blood level.
   a. peak
   b. trough
   c. weight
   d. dilution

   ANS: A
   The peak is the highest range of the blood level when giving scheduled antibiotics.

   DIF: Cognitive Level: Apply REF: p. 159 OBJ: 2
   TOP: Therapeutic Blood Levels KEY: Nursing Process Step: Evaluation
   MSC: NCLEX: Safe, Effective Care Environment: Safety and Infection Control

7. Which is true of antibiotics?
   a. They are never used in viral, parasitic, or fungal infections.
   b. They are rarely used in viral, parasitic, or fungal infections.
   c. They are used in viral, parasitic, or fungal infections if a secondary bacterial

infection develops.
d. They are used in superinfections caused by yeast.

ANS: C
When a secondary bacterial infection occurs, specific antibiotics are effective for the primary problems for which the medication might be used.

DIF: Cognitive Level: Understand REF: p. 150 OBJ: 2
TOP: Antiinfective Agents KEY: Nursing Process Step: N/A
MSC: NCLEX: Safe, Effective Care Environment: Safety and Infection Control

8. Which are the most common adverse reactions to antiinfective medications?
   a. Yeast infections, vaginal itching, and thrush
   b. Superinfections, organ toxicity, and hypersensitivity
   c. Ototoxicity, nephrotoxicity, and hepatotoxicity
   d. Allergy, anaphylaxis, and cross-sensitivity

ANS: B
Superinfections may develop, particularly after long-term use. There are certain antibiotics that are much more likely to produce tissue damage than others.

DIF: Cognitive Level: Remember REF: p. 150 OBJ: 3
TOP: Antiinfective Agents KEY: Nursing Process Step: Diagnosis
MSC: NCLEX: Physiological Integrity

9. The LPN/LVN giving primaquine must know this medication is used to treat which condition?
   a. Pneumonia
   b. Cardiac disease
   c. Edema of the legs
   d. Malaria

ANS: D
Primaquine is a drug used in the treatment of malaria (antimalarial).

DIF: Cognitive Level: Apply REF: pp. 173-174 OBJ: 2
TOP: Antimalarial Drugs KEY: Nursing Process Step: Implementation
MSC: NCLEX: Physiological Integrity

10. Which treatment is used for treating active tuberculosis?
    a. Long-term treatment with more than one drug
    b. Developing drug-resistant organisms
    c. Chemoprophylaxis with bacteriostatic medications
    d. Chemotherapy in patients at high risk for developing infection

ANS: A
Antitubercular drugs are classified as primary or secondary agents to describe the way they are used in treating tuberculosis. The combination of drugs helps to slow the development of bacterial resistance.

DIF: Cognitive Level: Remember REF: p. 165 OBJ: 2
TOP: Antitubercular Drugs KEY: Nursing Process Step: N/A
MSC: NCLEX: Safe, Effective Care Environment: Safety and Infection Control

11. Which patients are at highest risk for developing tuberculosis?
    a. All children up to the age of 7 years
    b. Individuals whose skin tests have become positive in the last 2 years
    c. All children exposed to sunlight between noon and 6:30 PM
    d. Individuals with debilitating diseases such as asthma, hypertension, and ulcers

    ANS: B
    Most cases of infectious TB are found in people who have not been adequately treated with antitubercular medications and in people who contract primary TB as a result of reduced immunity from human immunodeficiency virus (HIV) infection. The diagnosis of tuberculosis is made from the patient's history, physical examination, x-ray studies, and laboratory work.

    DIF: Cognitive Level: Understand REF: p. 165 OBJ: 1
    TOP: Diagnosis of Tuberculosis KEY: Nursing Process Step: N/A
    MSC: NCLEX: Safe, Effective Care Environment: Safety and Infection Control

12. A patient is being treated for pinworms with anthelmintics. In addition to taking the medication, what should the nurse be sure to cover during the teaching session?
    a. Wash the toilet seat weekly.
    b. There are special diet requirements before taking this medication.
    c. There is no need to test other family members for this condition.
    d. You may have diarrhea and abdominal pain while taking this medication.

    ANS: D
    Some people have diarrhea and abdominal discomfort while taking the medication. During the initial period of illness, patients must remember that they are contagious. Every effort must be made to protect those nearby.

    DIF: Cognitive Level: Understand REF: p. 172 OBJ: 1
    TOP: Family Teaching KEY: Nursing Process Step: Implementation
    MSC: NCLEX: Safe, Effective Care Environment: Safety and Infection Control

13. In which situation should medications for malaria be given?
    a. Prophylactically when people travel to areas in which malaria is common
    b. Prophylactically when people return from malaria-infested areas
    c. For treatment of malaria once the acute illness is over
    d. Prophylactically in acute cases of malaria

    ANS: A
    People in the military or those traveling to or living in areas where malaria is endemic can use antimalarials to prevent malaria and to treat the symptoms.

    DIF: Cognitive Level: Understand REF: p. 172 OBJ: 2
    TOP: Antimalarials KEY: Nursing Process Step: N/A
    MSC: NCLEX: N/A

14. Penicillin is the drug of choice in the treatment of which infections?
    a. Urinary tract infections caused by *Escherichia coli*
    b. Otitis media caused by *Haemophilus*
    c. Group A beta-hemolytic streptococci
    d. Group B staphylococci

ANS: C
Penicillin is effective in the treatment of the following susceptible organisms: group A beta-hemolytic streptococci and other less common organisms.

DIF: Cognitive Level: Remember REF: p. 152 OBJ: 2
TOP: Penicillin KEY: Nursing Process Step: N/A MSC: NCLEX: N/A

15. A sulfonamide, Bactrim, is ordered for a patient with a urinary tract infection. What should the nurse teach the patient to do while taking this medication?
    a. Drink large amounts of water with this medication.
    b. Take the medication on a full stomach.
    c. Take the medication at night before going to bed.
    d. Drink milk when taking the medication.

    ANS: A
    To prevent crystals in the urine, the patient should be told to drink large amounts of water while taking this medication.

    DIF: Cognitive Level: Apply REF: p. 161 OBJ: 5
    TOP: Sulfonamides KEY: Nursing Process Step: Implementation
    MSC: NCLEX: Physiological Integrity

16. Which are common penicillin products?
    a. Amoxicillin, streptomycin, and lincomycin
    b. Nystatin, bacitracin, and cloxacillin
    c. Erythromycin, cefaclor, and sulfadiazine
    d. Cloxacillin, ampicillin, and nafcillin

    ANS: D
    Penicillins come in different forms and may be classified as natural penicillinase-resistant, broad-spectrum aminopenicillin, and extended-spectrum. Table 9-1 presents a summary of penicillins.

    DIF: Cognitive Level: Understand REF: pp. 152-153 | Table 9-1
    OBJ: 2 TOP: Penicillin KEY: Nursing Process Step: N/A
    MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

17. Which should be true of any antibiotic used to treat an infection caused by a penicillinase-producing organism?
    a. It should be acid stable.
    b. It should be an extended-spectrum antibiotic.
    c. It should be penicillinase resistant.
    d. It should be a narrow-spectrum antibiotic.

    ANS: C
    The dosage of antibiotic ordered depends on the type and severity of the infection. Penicillins come in different forms; one class is natural penicillinase-resistant penicillin.

    DIF: Cognitive Level: Understand REF: p. 153 OBJ: 2
    TOP: Penicillin KEY: Nursing Process Step: N/A MSC: NCLEX: N/A

18. The nurse is reviewing a patient's list of medications and notes the patient should not be given a sulfonamide because the patient is sensitive to which class of drugs?
    a. Antihypertensive medications
    b. Thiazide diuretics
    c. Cold preparations containing acetaminophen
    d. Insulin

    ANS: B
    A nurse should learn as much as possible about the complete history of the patient, including any allergy to drugs such as thiazides that might be contraindications or precautions to the use of sulfonamides.

    DIF: Cognitive Level: Remember REF: p. 161 OBJ: 4
    TOP: Sulfonamides KEY: Nursing Process Step: Assessment
    MSC: NCLEX: Physiological Integrity

19. A young woman comes into the clinic with a respiratory infection. Because she has a fever of 101.6° F, the physician starts her on ampicillin 250 mg PO q 6h. The patient has a history of being on birth control pills. Which represents what a nurse should teach the patient about oral contraceptives with the use of antibiotics?
    a. Penicillin will increase the effects of the birth control pill.
    b. Use a backup method for birth control protection this month.
    c. You will have a regular menstrual period; continue to take your birth control pill.
    d. Birth control pills work with antibiotics if you take an antacid with them.

    ANS: B
    The use of ampicillin and oral contraceptives together may produce menstrual irregularities and unplanned pregnancies.

    DIF: Cognitive Level: Apply REF: p. 153 OBJ: 4
    TOP: Drug Interactions and Women KEY: Nursing Process Step: Implementation
    MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

20. A patient has a history of kidney stones. He is being treated for a bladder infection with a sulfonamide drug. Which actions should the nurse advise this patient to do?
    a. Eat green, leafy vegetables and drink 8 oz of cranberry juice at each meal.
    b. Eat lean proteins and drink 8 oz of milk at each meal.
    c. Get regular exercise and lots of sunlight daily.
    d. Get regular exercise and drink adequate fluids daily.

    ANS: D
    The patient should be warned to stay out of the sunlight because of the photosensitivity associated with sulfonamides and to drink adequate fluids to avoid crystalluria.

    DIF: Cognitive Level: Apply REF: p. 161 OBJ: 3
    TOP: Adverse Reactions KEY: Nursing Process Step: Implementation
    MSC: NCLEX: Physiological Integrity

21. A 72-year-old patient is being treated for an infected right great toe. In reviewing this patient's history, the nurse has discovered the patient has decreased renal function. Which is correct concerning whether this patient should be started on aminoglycosides?
    a. An aminoglycoside should be started, because this antibiotic can be taken with

many other drugs.

b. An aminoglycoside should not be started, because this antibiotic is not broad spectrum.
c. An aminoglycoside should be started, because there is less sensitivity with this drug.
d. An aminoglycoside should not be started, because a specific tissue reaction has been identified.

ANS: D
It is important to carefully identify patients who may already have damage to organs before medication is started. Aminoglycosides may cause significant damage to the kidneys.

DIF: Cognitive Level: Analyze REF: p. 159 OBJ: 3
TOP: Adverse Reactions KEY: Nursing Process Step: Diagnosis
MSC: NCLEX: Physiological Integrity

22. An adult patient has a moderately severe infection and has been started on an antibiotic. The physician orders penicillin V potassium by mouth. Which dose would the nurse expect the physician to prescribe?
a. 15 to 50 mg 4 times daily
b. 150 to 170 mg q 6h
c. 250 to 500 mg 4 times daily
d. 1000 to 1500 mg 4 times daily

ANS: C
Penicillin V potassium is used in the treatment of mild to moderately severe infections when the patient can take oral medication.

DIF: Cognitive Level: Apply REF: p. 153 | Table 9-1
OBJ: 2 TOP: Natural Penicillin
KEY: Nursing Process Step: Evaluation MSC: NCLEX: Physiological Integrity

23. A patient was placed on an antitubercular drug because he tested positive for tuberculosis more than three times. The patient tells the nurse that the drug will completely kill the bacteria. Which should be the nurse's proper response?
a. "Yes, you are correct. That is the action of the medication."
b. "No, the medication only controls the bacteria."
c. "Yes, the medication covers the bacteria's cell growth."
d. "No, the action of the medication is unknown."

ANS: B
Most drugs used to treat tuberculosis do not kill the bacterium; rather they control the disease and prevent its spread through various organ systems in the infected patient or to other individuals.

DIF: Cognitive Level: Apply REF: p. 165 OBJ: 2
TOP: Antitubercular Drugs KEY: Nursing Process Step: Implementation
MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

24. A patient was ordered a cephalosporin medication as a broad-spectrum antibiotic for a severe infection. What important factor does the nurse know about this medication?
a. It is not effective after penicillin use.

b. It is more effective on gram-positive organisms.
c. It should not be used by those allergic to penicillin.
d. It is less effective in resistant organisms.

ANS: C
Patients reporting any previous allergy to penicillin may also be allergic to some cephalosporins.

DIF: Cognitive Level: Apply REF: p. 153 OBJ: 3
TOP: Broad-Spectrum Antibiotics KEY: Nursing Process Step: Diagnosis
MSC: NCLEX: Physiological Integrity

25. The nurse is providing education for a patient prescribed a fluoroquinolone. Which response made by the patient assures the nurse that teaching has been effective?
a. "I can discontinue this medication once I feel better."
b. "There are no drug interactions associated with this medication."
c. "I should take this medication with food to decrease GI upset."
d. "I can take this medication with caffeine such as a cup of coffee."

ANS: C
Fluoroquinolones should be taken with food to decrease adverse GI effects. Keep older patients well hydrated.

DIF: Cognitive Level: Apply REF: p. 160 OBJ: 5
TOP: Fluoroquinolones KEY: Nursing Process Step: Evaluation
MSC: NCLEX: Physiological Integrity

MULTIPLE RESPONSE

26. Which adverse reactions are associated with the use of broad-spectrum antibiotics? *(Select all that apply.)*
a. Increased appetite
b. Overgrowth of yeast
c. Superinfection
d. Bacterial changes in the bowel
e. Nausea

ANS: B, C, D
Several types of adverse reactions are seen with broad-spectrum antibiotics. Adverse reactions include superinfections, an overgrowth of yeast, and changes in the normal bacteria in the bowel.

DIF: Cognitive Level: Understand REF: p. 150 OBJ: 3
TOP: Adverse Reactions KEY: Nursing Process Step: Assessment
MSC: NCLEX: Physiological Integrity

27. Which drugs should be taken on an empty stomach? *(Select all that apply.)*
a. Ciprofloxacin
b. Erythromycin
c. Lincomycin
d. Tetracycline

e. Sulfonamides

ANS: C, D
Lincomycin and tetracycline are best absorbed on an empty stomach—1 hour before or 2 hours after meals—and should be taken with a full glass of water.

DIF: Cognitive Level: Understand REF: p. 158 OBJ: 2
TOP: Patient Education KEY: Nursing Process Step: Implementation
MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential

28. When giving a patient a penicillin injection, what should the nurse keep in mind? *(Select all that apply.)*
    a. Aspirate before injecting the medication.
    b. The patient must be watched for 30 minutes for adverse reactions.
    c. A poor bleeding response is normal.
    d. Plunger deficit accounts for needle length.
    e. Assess the patient's heart rate and blood pressure.

    ANS: A, B, E
    With IM injections of penicillin, the nurse should assess the patient's blood pressure and heart rate prior to administration to obtain a baseline. The nurse should always aspirate (pull back the plunger of the syringe to check for blood) to prevent medication from accidentally being injected into a blood vessel. The patient should be advised to wait 30 minutes before leaving an office or clinic to allow time for health care staff to watch for adverse reactions.

    DIF: Cognitive Level: Apply REF: p. 153 OBJ: 2
    TOP: Penicillin KEY: Nursing Process Step: Implementation
    MSC: NCLEX: Physiological Integrity: Reduction of Risk Potential