



Pharmacology

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Practice Questions

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1. Which of the following statements about bisphosphonates is false?

- A. Bioavailability is low
- B. None of the Above
- C. Used to treat multiple myeloma
- D. Clinical effect determined by R1 group

2. The pharmacotherapy of osteoporosis consists of all of the following except?

- A. Calcitonin
- B. Both A and C
- C. Estrogen modulator drugs
- D. Furosemide

3. The characteristic symptoms of osteoarthritis includes all of the following except?

- A. Nausea/vomiting
- B. Pain with weight bearing
- C. Both B and C
- D. Morning stiffness

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4. Which of the following insulin cannot be mixed with any other type of insulin?

- A. Insulin aspart
- B. Insulin lispro
- C. Insulin isophane
- D. Insulin glargine



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5. A patient is prescribed levothyroxine following a diagnosis of hypothyroidism. Which data would show that the medication is effective?

- A. The patient has exophthalmos.
- B. The patient's radial pulse is 90 bpm.
- C. The patient complains of being cold.
- D. The patient complains of constipation.

6. Which one of the following should not be used during prescribing to minimize errors?

- A. Gram
- B. Milligram
- C. Grain
- D. Milliliter

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7. Cinchonism is a syndrome of side effects associated with which of these drugs?

- A. Mesalazine
- B. Digoxin
- C. Quinine
- D. Thalidomide

8. Macrobid could have which of the following side effects?

- A. Tooth staining
- B. Joint pain
- C. Abdominal pain
- D. Both A and B

9. If a patient is taking NSAIDS, which of the following statements would be considered the most correct regarding the patient also taking Aspirin for cardio protection?

- A. NSADS should be taken at least 8 hours after taking aspirin.
- B. NSAIDs should be taken at least 30 minutes to 2 hours before taking aspirin.
- C. NSAIDs should be taken at least 30 minutes to 2 hours after taking aspirin.
- D. NSAIDs should never be taken with daily aspirin use.

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10. The cell and Coombs classification system categorizes allergic reactions and is useful in describing and classifying patient reactions to drugs. Type I reactions are immediate hypersensitivity reactions and are mediated by:

- A. immunoglobulin G (IgG).
- B. immunoglobulin M (IgM).
- C. immunoglobulin E (IgE).
- D. immunoglobulin A (IgA).

11. Which of the following statements is true about combination therapy for the treatment of HIV disease?

- A. It is only effective if used alternating with periods of monotherapy.
- B. Is the only FDA-approved treatment for HIV disease.
- C. It completely shuts off replication of HIV.
- D. It appears to cause a sustained benefit achieved by drug no. 1 preventing the emergence of resistance to drug no. 2 despite resistance to drug no. 1.

12. Amphetamines are included in the category of drugs of abuse because of their ability to:

- A. Cause nervousness
- B. Decrease weight
- C. Raise blood pressure
- D. Enhance performance

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13. Which antiepileptic drug works by binding to sodium channels in their inactive state, prolonging that inactivity?

- A. Lamotrigine
- B. Phenytoin
- C. Levetiracetam
- D. Ethosuximide

14. Meditation would be considered to be in which of the following healing methods of CAM (Complementary and Alternative) therapies?

- A. Mind-body interventions
- B. Spiritual
- C. Biologic-based therapies
- D. Manual healing



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15. A male patient with blood type AB, Rh factor positive needs a blood transfusion. The Transfusion Service (blood bank) sends type O, Rh factor negative blood to the unit for the nurse to infuse into this patient. The nurse knows that:

- A. This donor blood is incompatible with the patient's blood.
- B. This is a compatible match.
- C. The patient is at minimal risk receiving this product since it is the first time he has been transfused with type O, Rh negative blood.
- D. Premedication of the patient with diphenhydramine hydrochloride (Benadryl) and acetaminophen (Tylenol) will prevent any transfusion reactions or side effects.

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16. A patient taking sulfasalazine should be told which of the following?
I. Take sulfasalazine with food
II. Sulfasalazine may turn tears, urine, and sweat orange
III. Sulfasalazine may induce photosensitivity
IV. Take sulfasalazine on an empty stomach.

- A. I and II only
- B. II and IV only
- C. I, II, and III only
- D. II, III, and IV only

17. Methylergonovine (Methergine) is prescribed to a patient who is having postpartum bleeding. Prior to giving the medication, the nurse contacts the physician who prescribed the medication if which of the following condition is documented in the patient's chart?

- A. Ischemic heart disease
- B. Hypotension
- C. Uterine atony
- D. Acute Gastroenteritis

18. Which of the following laboratory tests must be monitored for pregnant patients receiving dexamethasone?

- A. Random blood sugar
- B. Red blood cell count
- C. Uric acid
- D. Serum Calcium



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**19. Diazepam (Valium) is prescribed to a client with alcohol withdrawal.

Which of the following statements made by the client indicates an understanding of the treatment regimen?**

- A. "This medication causes a blurring of vision".
- B. "I'll have my physician lower my dosage once I start to feel okay".
- C. "Drinking grapefruit can decrease the side effects with this medication".
- D. "This medication will cause a decreased platelet and white blood cell count in my blood".

20. Tetracycline has been prescribed for a client with Chlamydia trachomatis infection. Select the side effect of the medication. Select all that apply.

- A. Tremors
- B. Urinary frequency
- C. Glossitis

21. Where do macrolides exhibit their mechanism of action?

- A. 30S Ribosomal Unit
- B. mRNA Synthesis
- C. 50S Ribosomal Unit
- D. Cell Wall

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22. Gram positive is more susceptible to attack from beta lactam.

- A. TRUE
- B. FALSE

23. How many types of asthma are there?

- A. 3
- B. 4
- C. 2
- D. 1



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24. The four stages of severity of COPD would include all of the following except?

- A. Moderate
- B. Mild
- C. Severe
- D. Intermediate

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25. Which of the following statement about rivaroxaban is false?

- A. It is a direct thrombin inhibitor
- B. It is a direct factor Xa inhibitor

26. Beta blockers decrease triglyceride levels and increase levels of HDL cholesterol.

- A. True
- B. False

27. As a competent nurse, you are aware that vasodilators are used mainly to treat:

- A. Atrial fibrillation
- B. Hypotension
- C. Hypertension
- D. Diabetes

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28. Which of the following drugs is used in cases of beta blocker overdose?

- A. Naloxone
- B. Flumazenil
- C. Glucagon
- D. Deferoxamine

**29. The client with non-Hodgkin's lymphoma is receiving Idarubicin (Idamycin).
Which of the following would indicate to the nurse that the client is experiencing an adverse effect related to the medication?**

- A. Nausea and vomiting
- B. Weight loss
- C. Dysrhythmia
- D. Peripheral neuropathy



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30. Which of the following would be considered an early sign of neurotoxicity manifesting with the cancer patient that is receiving Oncovin (vincristine)?

- A. Weight loss
- B. Depression
- C. None of the above
- D. Depression of the Achilles reflex



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Answer Key & Explanations

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1. D — Clinical effect determined by R1 group

The clinical effect of bisphosphonates is determined by its R2 group. The R1 group is always a hydroxyl group.

2. D — Furosemide

The pharmacotherapy of osteoporosis consists of:

Calcitonin

Estrogen modulator drugs

Bisphosphonates.

3. A — Nausea/vomiting

The characteristic symptoms of osteoarthritis includes:

Pain with weight bearing

Pain with movement

Morning stiffness.

4. D — Insulin glargine

Insulin glargine when mixed with any other types of insulin changes its duration of action (a combination of long-acting and short-acting insulin) so it is advised that it should not be mixed with any other type of insulin.

5. B — The patient's radial pulse is 90 bpm.

Levothyroxine is effective if the radial pulse is within the normal range of 60-100 bpm. If the patient is cold or constipated they need more medication. If the patient is losing weight, they are taking too much medication.

6. C — Grain

Grain—The use of the apothecary system should be minimized.

7. C — Quinine

Quinine can cause cinchonism; a syndrome of side effects that include nausea/vomiting, deafness, and visual disturbances and even blindness. The name cinchonism comes from the Cinchona bark, from which quinine was originally isolated.

8. D — Both A and B

Macrobid (nitrofurantoin) is used for the treatment of urinary tract infections. It can cause the patient to experience tooth staining, abdominal pain, nausea/vomiting, dizziness or diarrhea.

9. C — NSAIDs should be taken at least 30 minutes to 2 hours after taking aspirin.

If the patient is on daily Aspirin for cardio protection, care should be taken if NSAIDs are also ordered.

NSAIDs should not be taken for at least 30 minutes to 2 hours after or 8 hours before Aspirin usage to ensure that the NSAIDs will not reduce the cardio protective effects the Aspirin provides.

10. C — immunoglobulin E (IgE).

IgE, the least common serum immunoglobulin (Ig) binds very tightly to receptors on basophils and mast cells and is involved in allergic reactions. Binding of the allergen to the IgE on the cells results in the release of various pharmacological mediators that result in allergic symptoms.

Option B: IgG is the major Ig (75 percent of serum Ig is IgG). Most versatile Ig because it is capable of



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carrying out all of the functions of Ig molecules. IgG is the only class of Ig that crosses the placenta. It is an opsonin, a substance that enhances phagocytosis.

- Option C:** IgA, the second most common serum Ig is found in secretions (tears, saliva, colostrum, and mucus). It is important in local (mucosal) immunity.
- Option D:** IgM, the third most common serum Ig, is the first Ig to be made by the fetus and the first Ig to be made by a virgin B cell when it is stimulated by antigen. IgM antibodies are very efficient in leading to the lysis of microorganisms.

11. D — It appears to cause a sustained benefit achieved by drug no. 1 preventing the emergence of resistance to drug no. 2 despite resistance to drug no. 1.

Combination therapy is superior to monotherapy at this time for reasons described in this choice. This form of therapy is recommended for all patients with HIV by the Department of Health and Human Services (DHHS) and the World Health Organization (WHO). This daily treatment of multiple HIV medications is an HIV regimen.

- Option A:** A typical initial HIV regimen includes three HIV medications from a minimum of two drug classes. Although this treatment is not curative, it can provide longer lives for patients and reduce HIV transmission. This reduction of transmission has become a popular use of antiretroviral therapy for individuals who are HIV-positive and are with an HIV-negative partner.
- Option B:** The FDA does not approve of investigational HIV drugs. Investigational drugs include those used to treat or prevent HIV and vaccines to treat or prevent HIV. These drugs are only available in clinical trials. No vaccines exist yet; however, researchers are studying this possibility.
- Option D:** The successes of antiretroviral therapy have reduced HIV to a chronic condition in many parts of the world as progression to AIDS has become rare. Studies have found that 3-drug therapy has led to a 60% to 80% decline in rates of AIDS, hospitalization, and death. By 2030 the CDC plans to implement a 90-90-90 plan (90% HIV diagnosed, 90% on therapy, and 90% suppressed).

12. D — Enhance performance

Drugs that produce a desired effect, such as feelings of euphoria and improved performance, tend to be overused and abused. Nervousness, decreased weight, and increased blood pressure are all effects of amphetamine. However, they are considered drugs of abuse because of their ability to enhance performance and produce a euphoric effect.

- Option A:** Amphetamine is FDA-approved for the treatment of attention-deficit/hyperactivity disorder (ADHD) and narcolepsy. It has indications as a first-line agent for ADHD in adults and children six years of age and older. Amphetamine is also a second-line agent for the treatment of narcolepsy.
- Option B:** Amphetamine is a central nervous (CNS) system stimulant that functions by increasing the amounts of dopamine, norepinephrine, and serotonin (to a lesser extent) in the synaptic cleft through a variety of mechanisms. Amphetamine enters the presynaptic axon terminal through diffusion or uptake by the monoamine transporters DAT, NET, and SERT.
- Option C:** Once inside the presynaptic terminal, amphetamine increases the amounts of monoamine neurotransmitters in the cytosol through the inhibition of vesicular monoamine transporter 2 (VMAT2) as well as through disruption of the electrochemical gradients necessary for vesicular transporter function. Amphetamine also inhibits the metabolism of monoamine neurotransmitters by inhibiting monoamine oxidase (MAO). At the same time, amphetamine stimulates the intracellular receptor TAAR1, which induces internalization or transporter reversal of DAT.

13. B — Phenytoin

Phenytoin works by binding to sodium channels in their inactive state, prolonging that inactivity.



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**14. A — Mind-body interventions**

Mind-body interventions could include:
Meditation
Yoga
Hypnotherapy
Biofeedback
Guided imagery
Movement-oriented therapies.

15. B — This is a compatible match.

Type O, Rh-negative blood has none of the major antigens and is safely administered to patients of all blood types. It is also known as the universal donor. It has neither A nor B antigens on red cells (but both A and B antibodies are in the plasma).
Option A: Type O is routinely in short supply and in high demand by hospitals – both because it is the most common blood type and because type O negative blood is the universal blood type needed for emergency transfusions and for immune-deficient infants.
Option B: Premedication with these agents will not prevent a major transfusion reaction if the blood type and Rh factors of the donor blood are incompatible with the recipient's blood. Types O negative and O positive are in high demand. Only 7% of the population are O negative. However, the need for O negative blood is the highest because it is used most often during emergencies. The need for O+ is high because it is the most frequently occurring blood type (37% of the population).
Option D: Approximately 45 percent of Caucasians are type O (positive or negative), but 51 percent of African-Americans and 57 percent of Hispanics are type O. Minority and diverse populations, therefore, play a critical role in meeting the constant need for blood.

16. C — I, II, and III only

Sulfasalazine should be taken with food, can induce photosensitivity, and may turn body fluids an orange color.

17. A — Ischemic heart disease

Methergine (methylergonovine maleate) is a semi-synthetic ergot alkaloid used for the prevention and control of postpartum hemorrhage. Ergot alkaloids are contraindicated in patients with cardiovascular diseases such as ischemic heart disease, stroke, peripheral vascular disease, rheumatic heart disease.

Options A, B, & D: These are not contraindicated with the use of methergine.

18. A — Random blood sugar

Elevation of blood glucose level is expected for patients receiving corticosteroid therapy such as dexamethasone so a routine check on the sugar level must be monitored.
Options B & D: These are not related to the use of dexamethasone.
Option C: Instead of Red blood cell count, White blood cell count must be monitored for any signs of infection, because corticosteroid suppresses the immune system.

19. C — "Drinking grapefruit can decrease the side effects with this medication".

Diazepam (Valium) can cause side effects such as sleepiness and drowsiness. Meanwhile, grapefruit can reduce the metabolism of this drug. This can result in the increased pharmacologic effects of Valium as well as its side effects.
Option A: Blurred vision is a recognized adverse effect of valium.
Option B: Long-term use of valium causes thrombocytopenia and neutropenia.
Option C: Usually, a client who is prescribed with valium begins to take a low dosage and it will be adjusted over time to reach the right dosage. Once the patient feels okay, the physician will give the smallest dosage that provides the desired effect of the medication.



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20. C — Glossitis

Side effects of tetracycline include glossitis, discoloration of the nails, photosensitivity, anorexia, nausea, vomiting, diarrhea, bulky loose stools, stomatitis, sore throat, black hairy tongue, dysphagia, and hoarseness.

21. C — 50S Ribosomal Unit

Macrolide antibiotics interfere with protein synthesis as their mechanistic mode. Specifically, these drugs bind – reversibly – to the **P site** on the 50S portion of the bacterial ribosome. As a result of this binding, tRNA is dissociated from its translocation site, thereby perilously damaging the protein synthesis sequence.

22. A — TRUE

Gram-positive bacteria have a cell wall simpler in structure with a single inner cytoplasmic membrane under a thin outer layer of peptidoglycan. Thus making them more susceptible to attack from beta-lactam antibacterial.

23. C — 2

Atopic or allergic asthma which is triggered by environmental allergens such as pollen, animal fur, tobacco smoke and dust mites. Non-atopic asthma is not triggered by allergens but by cold air, exercise or emotional stress. The pathology of this form of asthma is less well understood.

24. D — Intermediate

The four stages of severity of COPD includes:
Mild-stage I
Moderate-stage II
Severe-stage III
Very severe-stage IV.

25. B — It is a direct factor Xa inhibitor

Rivaroxaban is a direct factor Xa inhibitor. Other anticoagulant drugs – such as the injectables heparin and fondaparinux – also inhibit factor Xa to some degree.

26. B — False

Beta blockers are known to increase triglyceride levels and decrease levels of HDL cholesterol. However, their risk in significantly exacerbating atheromas is quite small.

27. C — Hypertension

Vasodilators are used to treat hypertension. Vasodilators are useful in treating a variety of medical conditions, most commonly systemic hypertension. Other diseases include myocardial infarction (both ST-segment elevation and non-ST-segment elevation), angina, heart failure, stroke, chronic kidney disease, preeclampsia, hypertensive emergency.

- Option A:** They are not used to treat diabetes. Since T1DM is a disease primarily due to the absence of insulin, insulin administration through daily injections, or an insulin pump, is the mainstay of treatment. In T2DM, diet and exercise may be adequate treatments, especially initially. Other therapies may target insulin sensitivity or increase insulin secretion by the pancreas. The specific subclasses for drugs include biguanides (metformin), sulfonylureas, meglitinides, alpha-glucosidase inhibitors, thiazolidinediones, glucagon like-peptide-1 agonist, dipeptidyl peptidase IV inhibitors, selective, amylinomimetics, and sodium-glucose transporter-2 inhibitors.
- Option C:** Atrial fibrillation is not treated with vasodilators. If there is evidence of rapid ventricular response, a beta-blocker or calcium-channel blocker should be commenced for rate control. These options can be used in the intravenous (IV) form for rapid response. Usually, a bolus is administered to the patient and then started on a drip if symptoms do not resolve.
- Option D:** Vasodilators are not used to treat hypotension. Asymptomatic hypotension should not receive drastic interventions. However, if symptoms are present, the treatment of hypotension should focus on reversing the underlying etiology.



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28. C — Glucagon

Glucagon is used as an antidote to beta blocker overdose for two reasons: it increases cardiac contractions and decreases renal vascular resistance.

29. C — Dysrhythmia

Idarubicin (Idamycin) and Daunorubicin (Daunoxome) may cause cardiotoxicity (such as dysrhythmia, fatigue, shortness of breath), cardiomyopathy, and ECG changes.

- Option B:** Weight gain, not weight loss is a side effect.
- Option C:** This is a usual side effect that can last for 2-3 days.
- Option D:** This is not a side effect related to this medication.

30. D — Depression of the Achilles reflex

One of the first indications that a patient may be beginning to experience neurotoxicity would be depression of the Achilles reflex.

This medication affects the peripheral nervous system.

Some other effects could include:

Foot drop

Hand drop

Paresthesia.



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