

## Chapter 49: Immune Blockers

1. The nurse works with a number of clients who require immunosuppressive treatment of autoimmune diseases. What classes of drugs would the nurse expect health care providers to order? Select all that apply.

- A. Corticosteroids
- B. Calcineurin inhibitors
- C. Sodium channel antagonists
- D. Biologics
- E. Antibiotics
- F. Diuretics

Answer: A, B, D

Rationale: Drugs used to suppress immunity include corticosteroids, calcineurin inhibitors, mTOR inhibitors, IMDH inhibitors, biologics, and monoclonal antibodies. Sodium channel antagonists are used to treat chronic angina. Antibiotics are used to treat bacterial infections. Diuretics are medications designed to increase the amount of water and salt expelled from the body as urine and lower blood pressure.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 1

Cognitive Level: Remember

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 666, Immunosuppressant Drugs

2. A nurse is teaching a client about immunosuppressive medication. Which client statement validates that the teaching was successful?

- A. "They are drugs that increase the production of T lymphocytes."
- B. "They decrease the strength of the body's immune response."

- C. "They reduce organ rejection in transplant clients."
- D. "These drugs attack the body's own tissue as if it were foreign."

Answer: B

Rationale: Immunosuppressive drugs are agents that reduce the strength of the body's own immune system. These medications also inhibit the inflammatory response, inhibit the action of T cells, and reduce antibody formation. These medications are used to treat autoimmune disease and reduce organ rejections in transplant clients. Autoimmune diseases usually attack the body's own tissues as foreign, resulting in the development of the disease.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 666, Immunosuppressant Drugs

3. A nurse is reviewing the electronic health record of a client who has been prescribed monoclonal antibody. The nurse would contact the prescriber if a history of which disease is documented?

- A. Ulcerative colitis
- B. Multiple sclerosis
- C. Rheumatoid arthritis
- D. Hepatitis B

Answer: D

Rationale: Monoclonal antibodies are used in the treatment of a variety of diseases, including multiple sclerosis, ulcerative colitis, and rheumatoid arthritis. Viral

infections, such as hepatitis B, can be reactivated during therapy, so the nurse should contact the prescriber if this disease is documented in the history.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 667, Monoclonal Antibodies

4. A nurse is providing teaching to a client who will undergo kidney transplantation. Which statement will the nurse include in the teaching regarding medications taken following the procedure?

- A. "Antirejection drugs are taken to prevent the body from rejecting the new kidney."
- B. "You will take the drugs if you experience complications from the procedure."
- C. "Immunotherapy medications will suppress the immune response of the new kidney."
- D. "You'll have to take the medications if the match with the donor kidney is not exact."

Answer: A

Rationale: The new organ is as much of a threat to the body as foreign microorganisms, and as a result, the immune system recognizes the foreign cell and attacks it. Immunotherapy medications or antirejection drugs are used to suppress the production and activity of the body's own immune cells.

Immunotherapy is used as a long-term treatment to protect the new organ. They are not taken only in the presence of complications, and they are used even if there is a match between the two individuals.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 666, Organ Transplant

5. A client with a kidney transplant taking cyclosporine has a laboratory requisition. Which laboratory tests would the nurse expect on the requisition? Select all that apply

- A. Complete blood count (CBC)
- B. Liver function tests (LFTs)
- C. Hemoglobin A1c (A1c)
- D. BUN/creatinine
- E. Magnesium
- F. Sodium

Answer: A, D

Rationale: Cyclosporine is a calcineurin inhibitor that is nephrotoxic in high doses, and the BUN/creatinine should be monitored. It is also an immunosuppressant agent, and the client should be routinely monitored for neutropenia and infectious disease, which can be assessed in the CBC. There is also severe reduction in red cells, white cells, and platelets when taking these medications. The LFTs, A1c, magnesium, and sodium are not affected by cyclosporine.

Question format: Multiple Select

Chapter: 49

Learning Objective: 3

Cognitive Level: Understand

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 666, Immunosuppressant Drugs

6. A nurse is reviewing discharge instructions for a client who has been prescribed tacrolimus and prednisone related to recent kidney transplantation. Which discharge instruction is expected?

- A. "Report headache, chills, and fever immediately."
- B. "A dietician will contact you regarding any potential dietary restrictions."
- C. "Nausea and gastrointestinal distress are common with these medications."
- D. "You should expect some degree of bruising."

Answer: A

Rationale: Tacrolimus is a calcineurin inhibitor and interferes with the immune system. Prednisone is a glucocorticoid steroid. Both are used in organ transplants. Common adverse effects include headache, chills, and fever, but all adverse effects should be reported. Many of the immunosuppressant agents interact with grapefruit and other citrus, so a dietician may need to be consulted regarding potential dietary restrictions. However, this would be done prior to discharging the client with medications. Nausea and GI distress are common with monoclonal antibodies. Severe reduction of red cells, white cells, and platelets is common with IMDH inhibitors, and this can cause bruising.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 3

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 666, Immunosuppressant Drugs

7. A client is prescribed basiliximab. Which statement is included in the teaching about the medication?

- A. "It targets antigens on the surface of cells."
- B. "It binds with calcium to activate T cells."
- C. "It prevents secretion of interleukin."

D. "It lyses lymphocytes."

Answer: A

Rationale: Basiliximab is a monoclonal antibody that targets specific antigens on the surface of a cell to reduce the immune response. It does not prevent secretion of interleukin, bind to calcium, or lyse lymphocytes.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 667, Monoclonal Antibodies

8. A nurse is preparing to administer infliximab to a client who has been admitted to the hospital for a rheumatoid arthritis (RA) exacerbation. Which nursing intervention is required?

- A. Confirm the client's ability to swallow.
- B. Check for patency of the intravenous site.
- C. Carefully draw the medication into the subcutaneous syringe.
- D. Contact the prescriber because the medication is contraindicated for this condition.

Answer: B

Rationale: Infliximab is a monoclonal antibody used in the treatment of RA. The medication is administered intravenously, so the nurse should assess the patency of the IV site. Since the medication is not taken orally or injected, and since it is indicated for RA, the other interventions are not required.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 672, Summary Drug Table

9. The nurse is caring for a client who has been prescribed etanercept. When administering therapy, the nurse should be especially alert for adverse effects if the client has a history of what disorder? Select all that apply.

- A. Hypertension
- B. Psoriasis
- C. Proteinuria
- D. Hepatitis B
- E. Rheumatoid arthritis

Answer: A, C

Rationale: Etanercept is a monoclonal antibody used in the treatment of several types of arthritis, including psoriatic, juvenile idiopathic, and rheumatoid. Nurses should monitor clients taking monoclonal antibodies for adverse effects if there is a history of cardiac or renal impairment (hypertension and proteinuria). Since monoclonal antibodies can reactivate viral infections such as hepatitis B, the prescriber should be notified of the condition prior to administration of any monoclonal antibody.

Question format: Multiple Select

Chapter: 49

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 667, Monoclonal Antibodies

10. A nurse is caring for a client who is scheduled to begin immunotherapy for cancer treatment. What factors will the nurse include in the assessment prior to the initial administration of the medication? Select all that apply.

- A. Vital signs
- B. Concurrent treatments
- C. Laboratory findings
- D. Client understanding of the therapy
- E. Transportation availability

Answer: A, B, C, D

Rationale: Medication treatment for immunotherapy can be administered in the ambulatory setting or as inpatient in the hospital. Objective data gathered before the initial administration of cancer immunotherapy could include vital signs, type and location of disease, inspection of general physical appearance (including baseline integumentary status), neurological and psychosocial assessment (to monitor for reactions), laboratory and radiographic tests, and pregnancy test. Subjective data may include the client's understanding of the treatment, previous or current treatments, other diseases, and history of travel to areas with high potential for infectious disease. Although the care team may assess the client's availability for transportation to the facility, this would not be part of the preadministration assessment.

Question format: Multiple Select

Chapter: 49

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 669, Preadministration Assessment

11. During intravenous administration of a monoclonal antibody, the client suddenly reports chills and headache. What does the nurse suspect?



- A. Hypersensitivity reaction
- B. Myocardial infarction
- C. Transient ischemic attack
- D. Stevens–Johnson syndrome

Answer: A

Rationale: Monoclonal antibodies are administered parentally, and hypersensitivity reactions are common. To lessen the reaction, acetaminophen and diphenhydramine are frequently given 30 minutes prior to the infusion. Myocardial infarction would require the client to report chest pain with radiation down the left arm and difficulty breathing. Transient ischemic attack has symptoms of confusion, difficulty talking, and vertigo. Stevens–Johnson syndrome starts with flu-like symptoms, followed by a painful rash that spreads and blisters.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 5

Cognitive Level: Understand

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 667, Monoclonal Antibodies

12. A client reports chills, headache, and body ache during administration of basiliximab. What medication does the nurse anticipate being administered at this time? Select all that apply.

- A. Diphenhydramine
- B. Ibuprofen
- C. Aspirin
- D. Loratadine
- E. Morphine

Answer: A

Rationale: Hypersensitivity reaction can occur during parenteral administration of monoclonal antibodies such as basiliximab. When a reaction does occur, the nurse should stop the infusion and administer IV steroids and/or diphenhydramine.

Ibuprofen is an anti-inflammatory and can exacerbate the infusion reaction. Aspirin is contraindicated as it is an antiplatelet. Loratadine is an antihistamine but does not work as well as diphenhydramine. Morphine is an opioid and is used in pain.

Question format: Multiple Select

Chapter: 49

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 667, Monoclonal Antibodies

13. The nurse is caring for a client who is receiving therapy with a monoclonal antibody. When providing teaching regarding potential adverse effects related to the integumentary system, which statement should the nurse include?

- A. "Be sure to avoid sunlight."
- B. "Apply an OTC acne medication if pustules appear."
- C. "Use sunscreen unless there's substantial cloud cover."
- D. "If a rash appears, go directly to the emergency department."

Answer: A

Rationale: A common adverse reaction involving monoclonal antibodies is skin rash. Clients should avoid sunlight and use sunscreen even on cloudy days. Clients should be instructed not to apply acne medications; they should, however, monitor any pustules that appear for signs of infection. Since the appearance of a rash is common, there is no need to seek emergency treatment.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 671, Altered Skin Integrity

14. The nurse is providing teaching to a client who will be taking an oral immunotherapy agent at home. What statement should the nurse include?

- A. "Let's discuss who can assist you with taking your medication."
- B. "Always take the drug as soon as you wake in the morning."
- C. "Store the medication in your refrigerator."
- D. "If you miss a dose, double the next dose."

Answer: A

Rationale: Some immunotherapy drugs are taken orally at home. The teaching plan should focus on taking the correct dose at the correct time, which needs to occur even when the client does not feel well. Eliciting the assistance from family members or other potential caregivers helps ensure this. The nurse should not tell the client to take the drug at a specific time unless directed by the prescriber; however, it is important to take the drug at the same time each day to maintain consistent serum levels. Injectable drugs are refrigerated. The client should take the medication as indicated on the label. It would not be appropriate for the nurse to recommend doubling a dose to make up for a missed dose. Any guidance on changing timing or dosage should come from the prescriber.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 671, Educating the Client and Family

15. A nurse is administering belatacept for a client who recently had a liver transplant. The nurse should inform the client for increased risk of what condition?

- A. Infection
- B. Cardiac dysrhythmias
- C. Electrolyte imbalance
- D. Diabetes

Answer: A

Rationale: Belatacept is an antiorgan rejection for acute renal and liver transplant. Adverse effects include gastrointestinal distress, hypertension, and increased risk of infection. The drug does not increase risk for cardiac disorder, electrolyte imbalances, or type 2 diabetes.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 672, Summary Drug Table

16. The nurse is providing education for a client who has been prescribed benralizumab. What statement will the nurse include in teaching?

- A. "You will receive an injection every few weeks."
- B. "The medication may cause eye irritation."
- C. "This drug might cause an increase in your creatine level."
- D. "Contact the health care provider if this doesn't help with your migraines."

Answer: A

Rationale: Benralizumab is an adjunct for severe asthma. It is administered subcutaneously 30 mg every 4 weeks for 3 weeks, then progresses to dosing every 8 weeks. Its side effects include headache, pharyngitis, and antibody development. Eye irritation is associated with the administration of dupilumab. An increase in creatine is observed with reslizumab. Benralizumab is prescribed for treatment of asthma, not migraines.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Understand

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 672, Summary Drug Table

17. A nurse is caring for a client with cluster migraine. Which medication does the nurse anticipate the prescriber to prescribe as prophylaxis?

- A. Galcanezumab
- B. Omalizumab
- C. Alemtuzumab
- D. Fremanezumab

Answer: A

Rationale: Galcanezumab is used for cluster and migraine prophylaxis. Omalizumab is used in moderate to severe persistent asthma. Alemtuzumab is used to treat multiple sclerosis and leukemia. Fremanezumab is used for migraine prophylaxis only.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Remember

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 672, Summary Drug Table

18. A nurse is caring for a client who receives medication every 6 months for treatment of multiple sclerosis. What medication does the nurse anticipate administering?

- A. Natalizumab 200 mg IV every four weeks
- B. Ocrelizumab 300 mg IV initial infusion
- C. Ozanimod 1 mg oral once daily
- D. Teriflunomide 8 mg oral once daily

Answer: B

Rationale: Ocrelizumab is administered 300 mg IV for initial dosing and then 600 mg IV every 6 months. Natalizumab is administered 300 mg IV every 4 weeks. Ozanimod and teriflunomide are taken orally each day.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 672, Summary Drug Table

19. A nurse is caring for a client who has red patches of skin covered with thick, silvery scales. Which medication does the nurse anticipate the health care provider prescribing?

- A. Apremilast
- B. Sarilumab
- C. Pegaptanib
- D. Mycophenolate

Answer: A

Rationale: The description of the client's skin suggests psoriasis. Apremilast is prescribed to treat this condition as well as psoriatic arthritis and oral ulcers resulting from Behcet disease. Sarilumab is used for rheumatoid arthritis. Pegaptanib is used for macular degeneration. Mycophenolate is a disease-modifying antirheumatic drug (DMARD) used for lupus and vasculitis.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Remember

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 672, Summary Drug Table

20. A nurse is explaining cell-mediated immunity to a client recently diagnosed with an autoimmune disease. What statement should the nurse include in teaching?

- A. "Cytotoxic T cells recognize and kill antigens."
- B. "Dendritic cells suppress the immune response once the threat is gone."
- C. "Natural killer cells initiate the immune process."
- D. "Helper T cells cause cell lysis in antigens."

Answer: A

Rationale: Cell-mediated immunity involves the lymphatic system and the T cells. Helper T cells coordinate the immune response and increase B-lymphocytes antibody production. Cytotoxic T cells recognize specific antigens, then attack and kill the cell. Suppressor T cells suppress the immune response once the threat is gone. Natural killer cells attack cells directly by altering the cell membrane and causing cell lysis. Dendritic cells are the key initiator of the immune process as they present the antigen to the T cells.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Clinical Problem-solving Process (Nursing Process)

Reference: p. 665, Key Terms

21. A nurse is teaching a client about a prescribed immunosuppressive medication that works by preventing cell cycle completion of the lymphocyte cells. Which medication does the nurse expect to discuss?

- A. Sirolimus
- B. Azathioprine
- C. Etanercept
- D. Basiliximab

Answer: A

Rationale: Sirolimus is an mTOR inhibitors that prevents cell cycle completion of the lymphocyte cells. Azathioprine is an IMDH inhibitor that inhibits enzymes and impairs B- and T-cell lymphocyte production. Etanercept is a biologic that causes lysis of lymphocytes. Basiliximab is a monoclonal antibody and prevents activation of T lymphocytes.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Understand

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 666, Immunosuppressant Drugs



22. A nurse is teaching a client about a prescribed immunosuppressive medication that acts by preventing production of cytokines and interleukins. What type of medication does the nurse expect to discuss?

- A. Corticosteroids
- B. Calcineurin inhibitors
- C. Monoclonal antibodies
- D. Biologics

Answer: A

Rationale: Corticosteroids prevent production of cytokines and interleukins so lymphocytes do not respond. Calcineurin inhibitors bind with calcineurin and prevent secretion of interleukin 2. Monoclonal antibodies prevent activation of T lymphocytes. Biologics lyse lymphocytes.

Question format: Multiple Choice

Chapter: 49

Learning Objective: 2

Cognitive Level: Understand

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 666, Immunosuppressant Drugs