

Chapter 51: Immune Modulating Therapies

1. The nurse caring for a client who is receiving treatment for cancer. The client has been informed that they will be receiving a drug to support passive immunity. When the client asks the nurse to explain passive immunity, how will the nurse respond?

- A. "It involves administration of antibodies from another person or animal."
- B. "Passive immunity is based on previous exposure to an antigen."
- C. "It involves your body's ability to recognize antigens as different from your own cells."
- D. "It is the form of immunity provided by vaccines."

Answer: A

Rationale: Passive immunity results from the administration of ready-made antibodies from another individual or animal. It creates no memory to protect against a later infection, so therapies must be repeated for sustained protection. Active immunity is based on exposure to antigens. The immune system regards them as foreign and over time develops the ability to recognize and attack them. Vaccines provide active immunity to disease.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 1

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 699, Agents That Support Passive Immunity

2. A client asks the nurse to explain how cancer cells grow. What term should the nurse use to describe the process by which cancer cells develop their own blood vessels?

- A. Metastasis
- B. Angiogenesis
- C. Allogeneic
- D. Cytotoxic

Answer: B

Rationale: Angiogenesis occurs when the cancer cells that have invaded the body grow their own blood vessels. Metastasis is the development of secondary malignant growths at a distance from a primary site of cancer. Allogeneic refers to items derived from an external source; in the context of cancer vaccines, the term describes vaccines derived from cells other than the client's. The term *cytotoxic* indicates toxicity to living cells.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 1

Cognitive Level: Understand

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 698, Key Terms

3. A health care provider (HCP) is considering medication therapy for a client with a large cancerous tumor. If the HCP is considering a drug that supports passive immunity, what type of drug is under consideration? Select all that apply.

- A. Monoclonal antibody
- B. Tumor-associated antigen
- C. Checkpoint inhibitor
- D. Cancer vaccine
- E. Interferon

Answer: A, C, E

Rationale: Monoclonal antibodies—including checkpoint inhibitors—and cytokines—a class that includes interferons—work by passive immunity. The therapies must be repeated for ongoing protection from the foreign invader. A cancer vaccine supports active immunity. A tumor-associated antigen is not a drug. Instead, it is a protein found on or within tumor cells.

Question format: Multiple Select

Chapter: 51

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 699, Agents That Support Passive Immunity

4. A client is to receive interferon-alpha for the treatment of lymphoma. Which generalized symptoms should the nurse suspect and assess for during the administration of this medication? Select all that apply.

- A. Chills
- B. Muscle aches
- C. Edema
- D. Diarrhea
- E. Headaches
- F. Malaise

Answer: A, B, D, E, F

Rationale: Interferons have cytotoxic properties. Like all cytokines, they create an immune response that can be flu-like symptoms. These include chills, cough, fever, headache, and malaise. Other symptoms include nausea, muscle aches, fatigue, sore throat, reduced appetite, or diarrhea. Skin rashes, injection pain and inflammation, edema in the extremities, and antibody development can occur.

Question format: Multiple Select

Chapter: 51

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 699, Cytokines

5. A nurse is preparing to administer aldesleukin. The health care provider has ordered a full set of vital signs before the administration, after 20 minutes of infusion, and at the completion of the infusion. Which statement **best** supports the vital sign assessment?

- A. The heart rate will indicate a transfusion reaction.
- B. A change in blood pressure may indicate capillary leak syndrome.
- C. The respiratory rate will monitor oxygen and carbon dioxide exchange.
- D. Changes in temperature will signal an allergic reaction.

Answer: B

Rationale: Administration of cytokines such as aldesleukin (an interleukin) results in increased vascular permeability. This can result in capillary leak syndrome, in which fluid leaks out of the circulation and into surrounding tissues, causing edema and dangerously low blood flow. Monitoring the vital signs helps identify the presence of capillary leak syndrome. Low blood pressure is the first clinical sign, and heart rate and respiratory rate would increase as the body attempts to correct the low blood pressure.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 3

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 699, Cytokines

6. A nurse is preparing to administer interferon alfa-2b to a client being treated for renal cell carcinoma. Which condition in the client's history would this medication be used cautiously?

- A. Seizure disorder
- B. Osteoarthritis
- C. Endometriosis
- D. Attention deficit disorder (ADD)

Answer: A

Rationale: Interferon alfa-2b is cytokine is a class of drugs that warrants caution in clients with cardiac or liver disease, history of seizure disorder, or thyroid problems. No similar precautions are required for history of osteoarthritis, endometriosis, or ADD.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 3

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 699, Cytokines

7. A nurse is caring for a client who has been prescribed rituximab for treatment of non-Hodgkin lymphoma. The client is being treated prophylactically to reduce the risk of tumor lysis syndrome. Which laboratory value would the nurse interpret as a possible indication that prophylaxis was unsuccessful?

- A. Potassium 6.0 mEq/L (6.0 mmol/L)
- B. Calcium 9.0 mg/dL (2.25 mmol/L)
- C. Uric acid 4.0 mg/dL (0.24 mmol/L)
- D. Phosphate 3.1 mg/dL (1.0 mmol/L)

Answer: A

Rationale: Tumor lysis syndrome is accompanied by hyperkalemia, hypocalcemia, hyperuricemia, and hyperphosphatemia. A potassium level of 6.0 mmol/L is above the normal range of 3.5–5.2 mEq/L (3.5–5.2 mmol/L), indicating hyperkalemia and potentially unsuccessful prophylaxis. Calcium, uric acid, and phosphate levels are all within normal ranges.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 3

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 700, Monoclonal Antibodies

8. A nurse is preparing to administer trastuzumab to a client who is beginning the first week of chemotherapy for esophageal cancer. For which potential adverse reaction should the nurse monitor as a potential indication of an infusion reaction? Select all that apply.

- A. Urticaria
- B. Hypotension
- C. Dizziness
- D. Incontinence
- E. Anorexia

Answer: A, B, C, D

Rationale: Trastuzumab is a monoclonal antibody that targets specific antigens on the surface of the tumor cell. Infusion reactions may appear due to the sensitivity of the client to the tissue of origin of the drug. Fatal infusion-related reactions are more likely to occur during the first infusion than in subsequent treatments.

Potential signs of an infusion reaction include urticaria, hypotension or

hypertension, dizziness, and incontinence. Anorexia is not an indication of infusion reaction.

Question format: Multiple Select

Chapter: 51

Learning Objective: 3

Cognitive Level: Understand

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 700, Table 51.1 Components of Infusion Reactions

9. The health care provider has prescribed ipilimumab for a client being treated for melanoma. Which common adverse effects should the nurse mention in client teaching?

- A. Diarrhea
- B. Fever
- C. Metallic taste
- D. Palpitations

Answer: A

Rationale: Ipilimumab is a checkpoint inhibitor. Common adverse effects include diarrhea, skin problems (e.g., rashes and pruritis), malaise, and inflammatory issues (e.g., thyroid, pancreas). Fever, metallic taste, and palpitations are potential adverse effects associated with infusion reactions, which can occur with the administration of monoclonal antibodies.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 701, Checkpoint and Other Inhibitors

10. The health care provider (HCP) has prescribed a checkpoint inhibitor for a client with skin cancer. The nurse knows to contact the HCP when discovering what medication in the client's history?

- A. Glipizide
- B. Omeprazole
- C. Famotidine
- D. Atorvastatin

Answer: A

Rationale: Glipizide is an antidiabetic medication used to treat type 2 diabetes. Caution is required in clients taking antidiabetic medications and a checkpoint inhibitor as concurrent use may cause more severe drops in blood sugar. Interactions may also occur with oral contraceptives, anticoagulants, antihypertensives, and some antipsychotics. No dangerous interactions are known to occur with omeprazole (a proton pump inhibitor), famotidine (antihistamine and antacid), or atorvastatin (a statin).

Question format: Multiple Choice

Chapter: 51

Learning Objective: 3

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 701, Checkpoint and Other Inhibitors

11. The nurse is reviewing the medication history of a client diagnosed with pancreatic cancer. The history indicates that the client currently takes aspirin, metoprolol, albuterol, and omeprazole. The health care provider (HCP) has prescribed a checkpoint inhibitor and cancer chemotherapy. The nurse should immediately report the use of which medication to the HCP?

- A. Acetaminophen

- B. Metoprolol
- C. Albuterol
- D. Omeprazole

Answer: B

Rationale: Caution is required in clients taking antihypertensive medications and a checkpoint inhibitor concurrently; interaction between the two medications may result in increased risk for hypotension. Since metoprolol is a beta-blocker used to treat high blood pressure, the nurse should alert the HCP to its presence in the medication history. Interactions may also occur with oral contraceptives, anticoagulants, antihypertensives, and some antipsychotics. No dangerous interactions are known to occur with acetaminophen (an NSAID with no blood-thinning properties), omeprazole (a proton pump inhibitor), or albuterol (a bronchodilator).

Question format: Multiple Choice

Chapter: 51

Learning Objective: 3

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 701, Checkpoint and Other Inhibitors

12. The health care provider has prescribed sipuleucel-T to a client. Which statement should the nurse include when teaching the client about the medication?
- A. "This drug will prevent you from developing prostate cancer."
 - B. "We can only prescribe this as part of a clinical trial."
 - C. "This is intended to delay or destroy your cancer."
 - D. "This medication fights your illness by providing passive immunity."

Answer: C

Rationale: Sipuleucel-T is a cancer vaccine approved for the treatment of metastatic prostate cancer. It is intended to delay or stop cancer cell growth once the disease has been diagnosed. It does not prevent initial development of the disease.

Because the drug is approved for marketing, clients do not need to be enrolled in clinical trials to receive it for the indicated use. Sipuleucel-T supports active immunity, not passive, by aiding in the development of antibodies.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 2

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 703, Cancer Vaccines

13. A nurse is monitoring a client who just received chimeric antigen receptor T-cell transfer (CAR-T) therapy. What postadministration vital sign will the nurse interpret as a potential sign of cytokine storm?

- A. Temperature of 103.3°F (39.6°C)
- B. Blood pressure of 128/82 mm Hg
- C. Respiratory rate of 18 breaths/minute
- D. Pulse oximetry of 93%

Answer: A

Rationale: CAR-T involves the collection of T cells from a client's own blood, engineering them to recognize specific antigens on the cancer cell surface, and then infusing the cells back into the same client. This therapy presents the risk of cytokine release syndrome (cytokine storm); the risk is proportional to the amount of diseased tissue present in the client at the time of administration. High fever is typically the first indication a reaction is progressing, so the nurse should interpret the temperature of 103.3°F (39.6°C) as a potential indication. The blood pressure is

slightly elevated, and pulse oximetry is slightly low, but neither value suggests an imminent health risk. The respiratory rate is within normal range.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 703, Adoptive Cell Therapy

14. A client who has metastatic melanoma will receive a genetically modified virus to treat the cancer. Which medication does the nurse anticipate the client receiving?

- A. Aldesleukin
- B. Talimogene laherparepvec
- C. Human papillomavirus (HPV)
- D. Trastuzumab

Answer: B

Rationale: Oncolytic viral therapy involves the administration of a genetically modified virus to destroy cancer cells. Talimogene laherparepvec, which is used to treat metastatic melanoma, is one example. Aldesleukin is an interleukin, and trastuzumab is a monoclonal antibody. HPV is a virus, but it is administered to prevent future cancers, not to attack existing disease.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 2

Cognitive Level: Remember

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 703, Adoptive Cell Therapy

15. A nurse is caring for a client who is undergoing treatment for cancer. The client reports fatigue as a result of medication therapy. Which teaching should the nurse include in the plan of care?

- A. Balance activity with rest periods.
- B. Try to sleep 6–8 hours each night.
- C. Avoid activity until the fatigue subsides.
- D. Inform the health care provider if fatigue is present tomorrow.

Answer: A

Rationale: Drug therapy for cancer frequently results in client fatigue. Client experiencing this should be instructed to balance activity with rest periods. The client should obtain whatever amount of sleep they believe is necessary; 6 hours is likely too little. The nurse should not recommend avoiding activity unless that order comes from the health care provider; moderate amounts of light exercise can actually help reduce fatigue. Fatigue is likely to continue at different intensities throughout therapy, so there is no need to inform the provider unless it becomes extreme.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 4

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 705, Monitoring and Managing Client Needs

16. A nurse is caring for a client who is experiencing diarrhea as a result of medication therapy for cancer. Which food should the nurse include in teaching related to this adverse effect? Select all that apply.

- A. Apples
- B. Oatmeal

- C. Bananas
- D. White rice
- E. Raw vegetables
- F. Coffee

Answer: A, B, C, D, E, F

Rationale: When a client experiences diarrhea as a result of drug therapy, the nurse should encourage foods that add bulk to the diet. These include pectin-containing fruits such as apples, as well as oatmeal, bananas, and white rice. While cooked vegetables will also be beneficial, the nurse should instruct the client to avoid raw vegetables because they may be too irritating and aggravate diarrhea. Similarly, the nurse should recommend that the client avoid caffeine-containing beverages like coffee, since they can also exacerbate the diarrhea.

Question format: Multiple Select

Chapter: 51

Learning Objective: 4

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 705, Monitoring and Managing Client Needs

17. A client receiving drug therapy for cancer shows the nurse an area on the arm where the skin appears red and raised and pustules are present. The client reports that the area "itches terribly." What is the appropriate action by the nurse?

- A. Call the health care provider to report the condition.
- B. Tell the client to apply an over-the-counter antibiotic ointment.
- C. Recommend scrubbing the area with soapy water twice daily.
- D. Apply an acne medication as directed until the pustules disappear.

Answer: A

Rationale: Based on the description, the client is experiencing an inflammatory reaction from the therapy. The presence of pustules may indicate infection, so the nurse should inform the health care provider (HCP). Only the HCP can determine whether an antibiotic is appropriate. The client should avoid rubbing or irritating the area. Although moisturizers for sensitive skin can help diminish itching, acne products should be avoided.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 4

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

Integrated Process: Teaching/Learning

Reference: p. 705, Altered Skin Integrity

18. The nurse is caring for a client who is receiving inpatient treatment for cancer and who reports frequent diarrhea. What action should the nurse take?

- A. Request testing of stool sample for *C. difficile*.
- B. Complete an abdominal assessment.
- C. Request serum laboratory assessments.
- D. Schedule endoscopy.

Answer: A

Rationale: Diarrhea may be a gastrointestinal adverse reaction to immunotherapy. However, since inpatient status increases the risk for hospital-acquired infection, stool should be sent to the laboratory to rule out *C. difficile* or other pathogen. The abdominal assessment would not assist in the diagnosis, and serum laboratory assessments are not necessary. Endoscopy is one potential tool for diagnosis, but that procedure requires an order from a health care provider.

Question format: Multiple Choice

Chapter: 51

Learning Objective: 5

Cognitive Level: Apply

Client Needs: Physiological Integrity: Pharmacological Therapies

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

Reference: p. 705, Diarrhea