

Name _____ Class _____ Date _____

Read these passages from the text and answer the questions that follow.

Autoimmune Diseases

Autoimmune diseases occur when the immune system fails to recognize the body's own molecules as "self," or belonging to the person. Instead, it attacks body cells as though they were dangerous pathogens. Some relatively common autoimmune diseases are listed in **Table 24.1**. These diseases cannot be cured, although they can be treated to relieve symptoms and prevent some of the long-term damage they cause.

Table 24.1: **Autoimmune Diseases**

Name of Disease	Tissues Attacked by Immune System	Results of Immune System Attack
Rheumatoid arthritis	tissues inside joints	joint damage and pain
Type 1 diabetes	insulin-producing cells of the pancreas	inability to produce insulin, high blood sugar
Multiple sclerosis	myelin sheaths of central nervous system neurons	muscle weakness, pain, fatigue
Systemic lupus erythematosus	joints, heart, other organs	joint and organ damage and pain

Why does the immune system attack body cells? In some cases, it's because of exposure to pathogens that have antigens similar to the body's own molecules. When this happens, the immune system not only attacks the pathogens. It also attacks body cells with the similar molecules.

Immunodeficiency

Immunodeficiency occurs when the immune system is not working properly. As a result, it cannot fight off pathogens that a normal immune system would be able to resist. Rarely, the problem is caused by a defective gene. More often, it is acquired during a person's lifetime. Immunodeficiency may occur for a variety of reasons:

- The immune system naturally becomes less effective as people get older. This is why older people are generally more susceptible to disease.
- The immune system may be damaged by other disorders, such as obesity or drug abuse.
- Certain medications can suppress the immune system. This is an intended effect of drugs given to people with transplanted organs. In many cases, however, it is an unwanted side effect of drugs used to treat other diseases.
- Some pathogens attack and destroy cells of the immune system. An example is the virus known as HIV. It is the most common cause of immunodeficiency in the world today.

Questions

1. What is an autoimmune disease?

2. Describe rheumatoid arthritis.

3. Why does the immune system attack body cells?

4. What is immunodeficiency?

5. Immunodeficiency may occur for a variety of reasons. Describe two of these reasons.

Vocabulary

Fill in the blank with the appropriate term.

1. An _____ is a disease in which the immune system makes an inflammatory response to a harmless antigen.
2. Any _____ that causes an allergy is called an allergen.
3. In autoimmune diseases, the _____ system attacks body cells as though they were dangerous pathogens.
4. _____ occurs when the immune system is not working properly.
5. AIDS results from years of damage to the _____ system by HIV.
6. Many people infected with _____ eventually develop acquired immune deficiency syndrome (AIDS).
7. HIV is a _____ that attacks cells of the immune system.
8. HIV is transmitted through direct contact of _____ membranes or certain body fluids.
9. HIV is no longer transmitted through _____ transfusions.
10. HIV infects and destroys helper _____ cells.

Multiple Choice

Circle the letter of the correct choice.

1. What is an allergy?
 - (a) An allergy is a disease in which the immune system makes an inflammatory response to a harmless antibody.
 - (b) An allergy is a disease in which the immune system makes an inflammatory response to a harmless antigen.
 - (c) An allergy is a disease in which the lymphatic system makes an inflammatory response to a harmless antigen.
 - (d) An allergy is a disease in which the immune system destroys harmless pathogens.
2. Two common causes of allergies are
 - (a) ragweed and poison ivy.
 - (b) ragweed and poison roses.
 - (c) poison ragweed and ivy.
 - (d) all of the above.
3. An autoimmune disease
 - (a) occurs when the immune system initiates an immune response against foreign pathogens.
 - (b) occurs when the immune system attacks the body's own pathogens.
 - (c) occurs when the immune system fails to recognize the body's own molecules as belonging to the person.
 - (d) occurs when the immune system fails to recognize foreign molecules as belonging to the person.
4. Type 1 diabetes
 - (a) attacks the insulin-producing cells of the pancreas.
 - (b) is an autoimmune disease.
 - (c) results in high blood sugar levels.
 - (d) all of the above
5. Causes of immunodeficiency include
 - (a) damage of the immune system by other disorders.
 - (b) suppression of the immune system by certain medications.
 - (c) destruction of cells of the immune system by pathogens.
 - (d) all of the above.
6. Which statement is true of the relationship between HIV and AIDS?
 - (a) HIV causes AIDS.
 - (b) AIDS causes HIV.
 - (c) HIV and AIDS are the same disease.
 - (d) HIV and AIDS are not related.
7. HIV transmission
 - (a) can occur through saliva.
 - (b) occurs through the direct contact of mucous membranes or some body fluids.
 - (c) can occur through kissing.
 - (d) all of the above
8. AIDS occurs

- (a) when helper T cells fall to a very low level.
- (b) about 3-5 years after an HIV infection.
- (c) when HIV levels match the level of helper T cells.
- (d) after years of damage to the immune system by helper T cells.

Vocabulary

Match the vocabulary word with the proper definition.

Definitions

- _____ 1. occur when the immune system fails to recognize the body's own molecules as "self"
- _____ 2. can treat mild allergy symptoms
- _____ 3. occurs when the immune system is not working properly
- _____ 4. autoimmune disease that attacks central nervous system
- _____ 5. destroyed by HIV infections
- _____ 6. the virus that attacks cells of the immune system and causes AIDS
- _____ 7. any antigen that causes an allergy
- _____ 8. the most severe allergic reaction
- _____ 9. autoimmune disease that attacks tissues at joints
- _____ 10. a disease in which the immune system makes an inflammatory response to a harmless antigen
- _____ 11. a set of diseases that results from years of damage to the immune system by HIV

Terms

- a. anaphylaxis
- b. antihistamines
- c. AIDS
- d. allergen
- e. allergy
- f. autoimmune disease
- g. helper T cells
- h. HIV
- i. immunodeficiency
- j. multiple sclerosis
- k. rheumatoid arthritis