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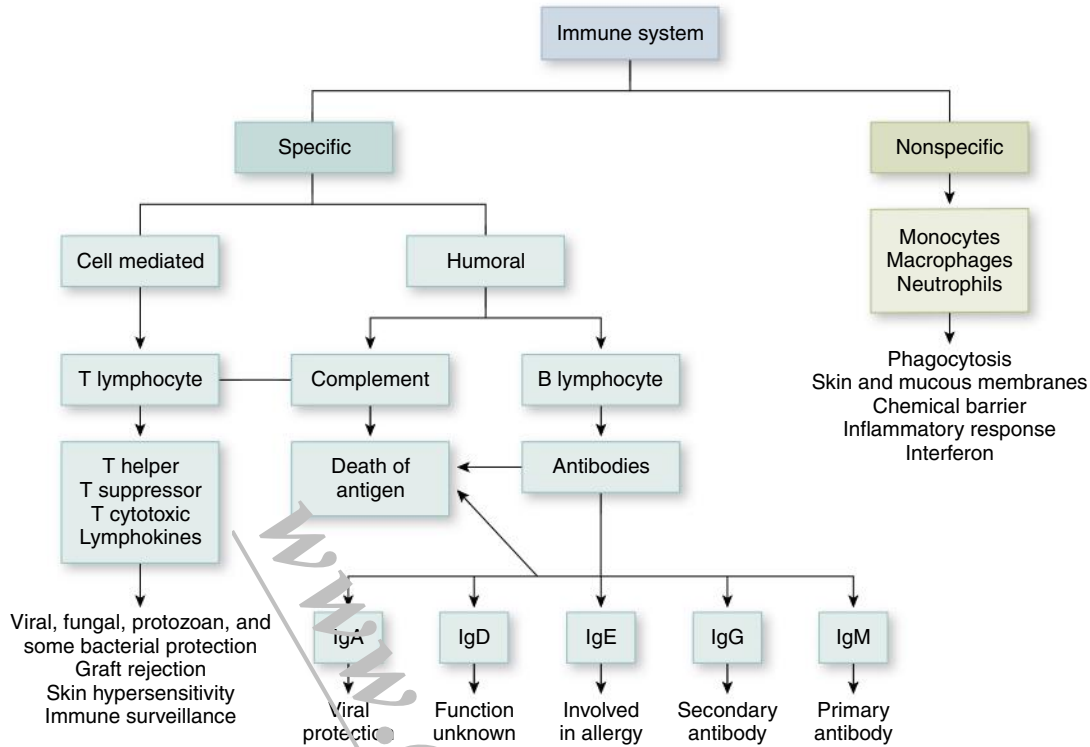


FIG. 63.1 Components of the immune system. Ig, Immunoglobulin.

2. The test supports a diagnosis, monitors disease activity and response to therapy, and establishes a prognosis for SLE.
3. Values: negative, lower than 70 U/mL by enzyme-linked immunosorbent assay (ELISA)
- C. Human immunodeficiency virus (HIV) testing: Client privacy needs to be maintained due to the sensitive nature of this test; a positive (reactive) test result indicates the need for additional testing.
 1. CD4⁺ T-cell count
 - a. Monitors the progression of HIV
 - b. As the disease progresses, usually the number of CD4⁺ T cells decreases, with a resultant decrease in immunity.
 - c. The normal CD4⁺ T-cell count is between 500 and 1600 cells/L.
 - d. In general, the immune system remains healthy with CD4⁺ T-cell counts higher than 500 cells/L.
 - e. Immune system problems occur when the CD4⁺ T-cell count is between 200 and 499 cells/L.
 - f. Severe immune system problems occur when the CD4⁺ T-cell count is lower than 200 cells/L.
 2. CD4-to-CD8 ratio
 - a. Monitors progression of HIV
 - b. Normal ratio is approximately 2:1.
 3. Viral culture involves placing the infected client's blood cells in a culture medium and measuring the amount of reverse transcriptase activity over a specified period of time.
 4. Viral load testing measures the presence of HIV viral genetic material (RNA) or another viral protein in the client's blood.
 5. The p24 antigen assay quantifies the amount of HIV viral core protein in the client's serum.
 6. Oral testing for HIV
 - a. Uses a device that is placed against the gum and cheek for 2 minutes
 - b. Oral transmucosal exudate (not saliva) is drawn into an absorbable pad, which, in an HIV-positive individual, contains antibodies.
 - c. The pad is placed in a solution, and a specified observable change is noted if the test result is positive.
 - d. If the result is positive, a blood test is needed to confirm the results.
 7. Home test kits for HIV
 - a. In one at-home test kit, a drop of blood or oral transmucosal exudate is placed on a test card with a special code number; the card is mailed to a laboratory for testing for HIV antibodies.
 - b. The individual receives the results by calling a special telephone number and entering the special code number; test results are then given.

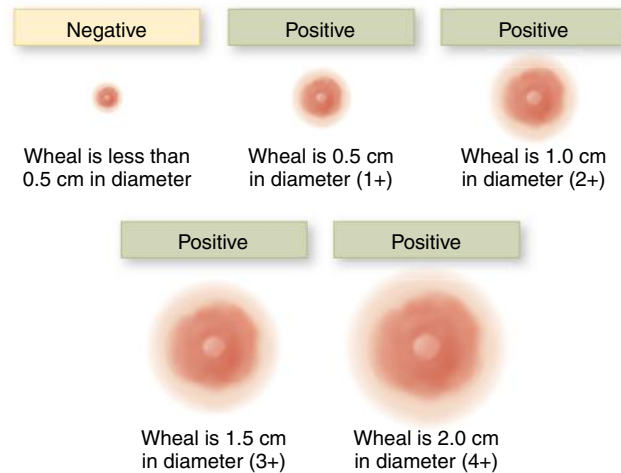


FIG. 63.2 Interpretation of intradermal test results, based on the size of the wheal after 15 to 30 minutes.

8. Nursing considerations

- Maintain issues of confidentiality surrounding HIV and acquired immunodeficiency syndrome (AIDS) testing.
- Follow prescribed state regulations and protocols related to reporting positive test results.
- Internet and mobile devices have increased accessibility to resources needed for managing HIV.

D. Skin testing

1. Description

- The administration of an allergen to the surface of the skin or into the dermis
- Administered by patch, scratch, or intradermal techniques

2. Preprocedure interventions

- Discontinue systemic corticosteroids or antihistamine therapy 5 days before the test as prescribed.
- Ensure that informed consent was obtained.

3. Postprocedure interventions

- Record the site, date, and time of the test.
- Record the date and time for follow-up site reading.
- Have the client remain in the waiting room or office for at least 30 minutes after the injections to monitor for adverse effects.
- Evaluate the risk for anaphylaxis, and be sure a licensed provider is available to assist; medications and equipment to manage anaphylaxis are required.
- Avoid the spreading of allergen solutions during the test.
- Inspect the site for erythema, papules, vesicles, edema, and wheal (Fig. 63.2).
- Measure flare along with the wheal, and document the size and other findings.
- Provide the client with a list of potential allergens, if identified.

! Have resuscitation equipment available if skin testing is performed, because the allergen may induce an anaphylactic reaction.

VI. Hypersensitivity and Allergy

A. Description

- An abnormal, individual response to certain substances that normally do not trigger such an exaggerated reaction
- In some types of allergies, a reaction occurs on a second and subsequent contact with the allergen.
- Skin testing may be done to determine the allergen.

B. Assessment

- History of exposure to allergens
- Social and environmental factors, including the physical environment
- Client's lifestyle and stress level
- Nutrition
- Itching, tearing, and burning of eyes and skin
- Rashes
- Nose itching, nasal stuffiness

C. Intervention

- Identification of the specific allergen using a daily or weekly diary
- Management of the symptoms with antihistamines, antiinflammatory agents, and/or corticosteroids
- Ointments, creams, wet compresses, and soothing baths for local reactions
- Desensitization programs may be recommended.

VII. Anaphylaxis

A. Description

- A serious and immediate hypersensitivity reaction that releases histamine from the damaged cells
- Anaphylaxis can be systemic or cutaneous (localized).

confidentiality محرمانه بودن , patch وصله - تکه , scratch خراش , wheal کهیر بزرگ , exaggerated تشدید شده , twitching پرش عضلانی , nasal stuffiness کیپ شدن بینی , soothing تسکین دهنده

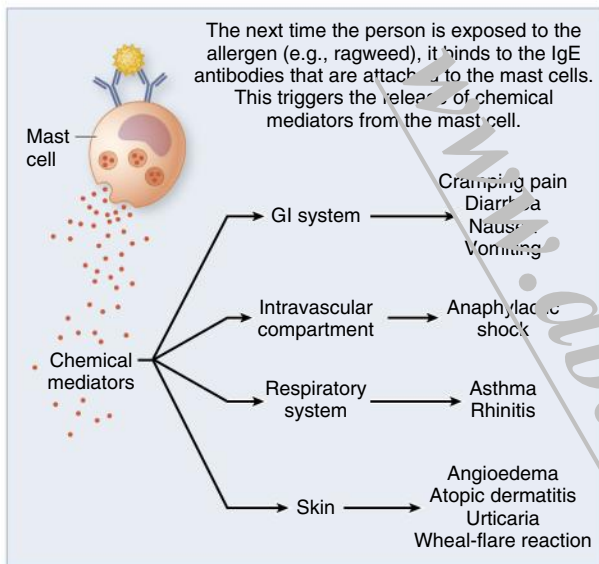
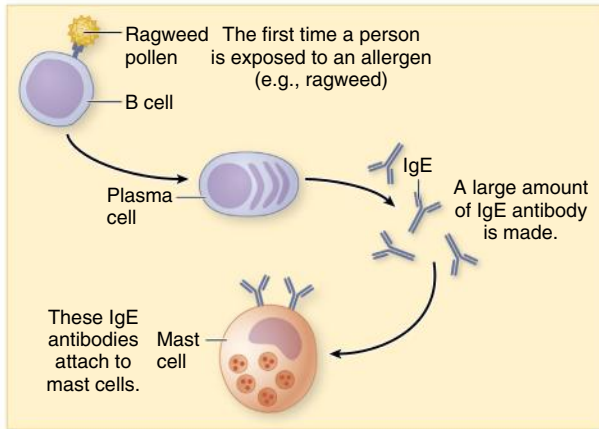


FIG. 63.4 Steps in a type 1 allergic reaction. GI, Gastrointestinal; IgE, immunoglobulin E.

BOX 63.2 Interventions for the Client with a Latex Allergy

- Ask the client about a known allergy to latex when performing the initial assessment.
- Identify risk factors for a latex allergy in the client.
- Use nonlatex gloves and all latex-safe supplies.
- Keep a latex-safe supply cart near the client's room.
- Apply a cloth barrier to the client's arm under a blood pressure cuff.
- Use latex-free syringes and medication containers (glass ampules) and latex-safe intravenous equipment.
- Instruct the client to wear a MedicAlert bracelet.
- Instruct the client about the importance of informing health care providers and local and paramedic ambulance companies about the allergy.
- Carry an epinephrine pen for possible anaphylaxis.

B. Assessment

1. Factors that decrease immune function
2. Frequent infections
3. Nutritional status
4. Medication history, such as chemotherapy or the use of corticosteroids for long periods
5. History of alcohol or drug abuse
6. Stress and trauma

C. Interventions

1. Protect the client from infection.
2. Promote a balanced diet with adequate nutrition.
3. Use strict aseptic technique for all procedures.
4. Provide psychosocial care regarding lifestyle changes and role changes.
5. Instruct the client in measures to prevent infection.
6. Instruct the client to wear a MedicAlert bracelet.

▲ The priority concern for a client with immunodeficiency is infection.

X. Autoimmune Disease

A. Description

1. Body is unable to recognize its own cells as a part of itself.
2. Autoimmune disease can affect collagenous tissue.

B. Systemic lupus erythematosus (SLE)

1. Description

- a. Chronic, progressive, systemic inflammatory disease that can cause major organs and systems to fail
- b. Connective tissue and fibrin deposits collect in blood vessels on collagen fibers and on organs.
- c. The deposits lead to necrosis and inflammation in blood vessels, lymph nodes, gastrointestinal tract, and pleura.

D. Assessment

1. Anaphylaxis or type 1 hypersensitivity is a response to natural rubber latex (Fig. 63.4; also see Fig. 63.3).
2. A delayed type 4 hypersensitivity reaction can occur; symptoms of contact dermatitis include pruritus, edema, erythema, vesicles, papules, and crusting and thickening of the skin and can occur within 6 to 48 hours following exposure.


E. Interventions (Box 63.2)

IX. Immunodeficiency

A. Description

1. **Immunodeficiency** is the absence or inadequate production of immune bodies.
2. The disorder can be congenital (primary) or acquired (secondary).
3. Treatment depends on the inadequacy of immune bodies and its primary cause.

- d.** No cure for the disease is known, but remissions are frequently experienced by clients who manage their care well.
- 2. Causes**
- a.** The cause of SLE is unknown, but it is believed to be a defect in immunological mechanisms, with a genetic origin.
- b.** Precipitating factors include medications, stress, genetic factors, sunlight or ultraviolet light, and pregnancy.
- c.** Discoid lupus erythematosus is possible with some medications but totally disappears after the medication is stopped; the only manifestation is the skin rash that occurs in lupus.
- 3. Assessment**
- a.** Assess for precipitating factors.
- b.** Erythema of the face (malar rash; also called a butterfly rash)
- c.** Dry, scaly, raised discoid rash on the face or upper body; scarring in older lesions; painless oral ulcers
- d.** Fever
- e.** Weakness, malaise, and fatigue
- f.** Anorexia
- g.** Weight loss
- h.** Photosensitivity
- i.** Joint pain
- j.** Erythema of the palms
- k.** Anemia
- l.** Positive antinuclear antibody (ANA) test and lupus erythematosus preparation
- m.** Elevated erythrocyte sedimentation rate (ESR) and C-reactive protein level
- 4. Interventions**
- a.** Monitor skin integrity and provide frequent oral care.
- b.** Instruct the client to clean the skin with a mild soap, avoiding harsh and perfumed substances.
- c.** Assist with the use of ointments and creams for the rash as prescribed.
- d.** Identify factors contributing to fatigue.
- e.** Administer iron, folic acid, or vitamin supplements as prescribed if anemia occurs.
- f.** Provide a high-vitamin and high-iron diet.
- g.** Provide a high-protein diet if there is no evidence of kidney disease.
- h.** Instruct in measures to conserve energy, such as pacing activities and balancing rest with exercise.
- i.** Administer topical or systemic corticosteroids, salicylates, and nonsteroidal anti-inflammatory drugs as prescribed for pain and inflammation.
- j.** Administer medications to decrease the inflammatory response as prescribed.
- k.** Hydroxychloroquine may be prescribed.
- l.** Monitor intake, output, and daily weight for signs of fluid overload if corticosteroids are used.
- m.** Instruct the client to avoid exposure to sunlight and ultraviolet light.
- n.** Monitor for proteinuria and red cell casts in the urine.
- o.** Monitor for bruising, bleeding, and injury.
- p.** Assist with plasmapheresis as prescribed to remove autoantibodies and immune complexes from the blood before organ damage occurs.
- q.** Monitor for signs of organ involvement such as pleuritis, nephritis, pericarditis, coronary artery disease, hypertension, neuritis, anemia, and peritonitis.
- r.** Note that lupus nephritis occurs early in the disease process.
- s.** Provide supportive therapy as major organs become affected.
- t.** Provide emotional support, and encourage the client to verbalize feelings.
- u.** Provide information regarding support groups, and encourage the use of community resources.
- v.** Lifestyle changes are needed for management and prevention of frequent flares.
- 5. Scleroderma (systemic sclerosis)**
- 1. Description**
- a.** Scleroderma is a chronic connective tissue disease similar to SLE. It is characterized by inflammation, fibrosis, and sclerosis.
- b.** This disorder affects the connective tissue throughout the body.
- c.** It causes fibrotic changes involving the skin, synovial membranes, esophagus, heart, lungs, kidneys, and gastrointestinal tract.
- d.** Treatment is directed toward forcing the disease into remission and slowing its progress.
- 2. Assessment**
- a.** Pain
- b.** Stiffness and muscle weakness
- c.** Pitting edema of the hands and fingers that progresses to the rest of the body
- d.** Taut and shiny skin that is free from wrinkles
- e.** Skin tissue is tight, hard, and thick; loses its elasticity; and adheres to underlying structures.
- f.** Dysphagia
- g.** Decreased range of motion
- h.** Joint contractures
- i.** Inability to perform activities of daily living

 For the client with SLE, monitor the blood urea nitrogen and creatinine levels frequently for signs of renal impairment.

remission فروکش , precipitating تشدید کننده , malar گونه ای , butterfly rash راش پروانه ای , scaly پوسته پوسته , raised برجسته , connective tissue همبند , community جامعه , resources منابع , ultraviolet ماوراء بنفش , تند - قوی harsh , کف دست palm , انقباض مرضی contracture , چروک wrinkle , بزاق shiny , سفت - کشیده taut , ادم گوده گذار pitting edema