chapter **45**

Immunosuppressants

Objectives

AFTER STUDYING THIS CHAPTER, THE STUDENT WILL BE ABLE TO:

1. Describe characteristics and consequences of immunosuppression.
2. Discuss characteristics and uses of major immunosuppressant drugs in autoimmune disorders and organ transplantation.
3. Identify adverse effects of immunosuppressant drugs.
4. Discuss nursing interventions to decrease adverse effects of immunosuppressant drugs.
5. Teach clients, family members, and caregivers about safe and effective immunosuppressant drug therapy.
6. Assist clients and family members to identify potential sources of infection in the home care environment.

Critical Thinking Scenario

Jane Reily, 46 years of age, is scheduled to have a kidney transplant this week. After transplantation, she will be on a regimen of immunosuppressive drugs, including corticosteroids and cyclosporine. You are responsible for Ms. Reily's teaching.

Reflect on:

- Why lifelong immunosuppression is necessary after an organ transplant.
- What symptoms Ms. Reily might experience if she rejects her transplanted kidney.
- How you will teach Ms. Reily to reduce her risk of infection.
- What lifelong measures for medical follow-up and management are necessary for a transplant recipient.

OVERVIEW

Immunosuppressant drugs interfere with the production or function of immune cells. The drugs are used to decrease an inappropriate or undesirable immune response. The immune response is normally a protective mechanism (see Chap. 42) that helps the body defend itself against potentially harmful external (eg, microorganisms) and internal agents (eg, cancer cells). However, numerous disease processes are thought to be caused or aggravated when the immune system perceives the person's own body tissues as harmful invaders and tries to eliminate them. This inappropriate activation of the immune response is a major factor in a growing list of serious diseases believed to involve autoimmune processes, including rheumatoid arthritis, systemic lupus erythematosus, inflammatory bowel disease, and others.

An appropriate but undesirable immune response is elicited when foreign tissue is transplanted into the body. If the immune response is not sufficiently suppressed, the body reacts as with other antigens and attempts to destroy (reject) the foreign organ or tissue. Although numerous advances have been made in transplantation technology, the immune response remains a major factor in determining the success or failure of transplantation.

Most of the available immunosuppressant drugs inhibit the immune response in a general or nonspecific manner. However, the number of drugs that suppress the immune response to specific antigens is increasing. Drugs used therapeutically as immunosuppressants comprise a diverse group, several of which also are used for other purposes. These include corticosteroids (see Chap. 24) and certain cytotoxic antineoplastic drugs (see Chap. 64). These drugs are discussed here primarily in relation to their effects on the immune response. The drugs used to treat autoimmune disorders or to prevent or treat transplant rejection reactions are the main focus of this chapter (Fig. 45–1). These drugs are described in the following sections and in Drugs at a Glance: Immunosuppressants. To aid understanding of im-