

# chapter 27

## Antidiabetic Drugs

### Objectives

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

1. Describe major effects of endogenous insulin on body tissues.
2. Discuss insulins and insulin analogs in terms of characteristics and uses.
3. Discuss the relationships among diet, exercise, and drug therapy in controlling diabetes.
4. Differentiate types of oral antidiabetic agents in terms of mechanisms of action, indications for use, adverse effects, and nursing process implications.
5. Explain the benefits of maintaining glycemic control in preventing complications of diabetes.
6. State reasons for combinations of insulin and oral agents or different types of oral agents.
7. Assist clients or caregivers in learning how to manage diabetes care, including administration of antidiabetic medications.
8. Collaborate with nurse diabetes educators, dietitians, and others in teaching self-care activities to clients with diabetes.
9. Assess and monitor clients' conditions in relation to diabetes and their compliance with prescribed management strategies.
10. Discuss dietary and herbal supplements that affect blood sugar and diabetes control.

### Critical Thinking Scenario

You are assigned to care for Ellen Rodriguez, a 13-year-old, who was admitted to the intensive care unit 12 hours ago in acute ketoacidosis. Her blood glucose level has stabilized after emergency treatment. She lives with her mother (a single parent) and five younger siblings in public housing within the Latino community. The diagnosis of diabetes mellitus is completely unexpected. Her mother asks why Ellen has to take shots, because her aunt did just fine on pills.

Ellen will be discharged in 2 to 3 days on insulin, glucose monitoring before meals and at bedtime, and a diabetic diet. Use the following questions to think about and plan Ellen's care.

- ▶ Visualize yourself as Ellen and try to verbalize how you might feel. Now visualize yourself as Ellen's mother and again try to explain how you are feeling. Compare and contrast these two pictures.
- ▶ Reflect on developmental and socioeconomic factors that need to be considered when planning Ellen's care.
- ▶ Role play how you might answer Ellen's mother's question concerning why her daughter needs to inject insulin rather than take pills to manage her diabetes.
- ▶ Before discharge, you have three teaching sessions of approximately 30 minutes each. Prioritize essential teaching and describe your teaching plan for Ellen.
- ▶ Discuss appropriate postdischarge follow-up to continue diabetic teaching and monitor compliance with prescribed management strategies.

### OVERVIEW

Insulin and oral agents are the two types of drugs used to lower blood glucose in diabetes mellitus. To assist readers in understanding the clinical use of these drugs, characteristics of endogenous insulin, diabetes, and the drugs are described.

### ENDOGENOUS INSULIN

Insulin is a protein hormone secreted by beta cells in the pancreas. The average adult pancreas secretes 40 to 60 units of insulin daily. This includes a basal amount of 1 to 2 units/hour and additional amounts (4 to 6 units/hour) after meals or when the blood sugar exceeds 100 mg/dL. In a fasting state, serum