chapter **54**

Drugs Used in Hypotension and Shock

Objectives

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

1. Identify clients at risk for development of hypovolemia and shock.
2. Identify common causes of hypotension and shock.
3. Discuss assessment of a client in shock.
4. Describe therapeutic and adverse effects of vasopressor drugs used in the management of hypotension and shock.

Critical Thinking Scenario

Betty Smith is in the cardiac care unit being managed for cardiogenic shock following an acute anterior myocardial infarction (MI). She is currently on the following IV infusion: dobutamine (Dobutrex) 5 mcg/kg/min and dopamine hydrochloride (Intropin) 5 mcg/kg/min.

Reflect on:

- Define shock. How does cardiogenic shock differ from hypovolemic shock, and how will this affect management?
- What symptoms would likely occur when a client is experiencing cardiogenic shock?
- Review the autonomic nervous system (ANS). Describe the ANS effects of Mrs. Smith's medications and how they will be used to manage shock.
- Dopamine's effects differ depending on dosage. What effects will you most likely see in Mrs. Smith?

OVERVIEW

Shock is a clinical syndrome characterized by decreased blood supply to body tissues. Clinical symptoms depend on the degree of impaired perfusion of vital organs (eg, brain, heart, and kidneys). Common signs and symptoms include oliguria, heart failure, mental confusion, cool extremities, and coma. Most, but not all, people in shock are hypotensive. In a previously hypertensive person, shock may be present if a drop in blood pressure of greater than 50 mm Hg has occurred, even if current blood pressure readings are "normal."

An additional consequence of inadequate blood flow to tissues is that cells change from aerobic (oxygen-based) to anaerobic metabolism. Lactic acid produced by anaerobic metabolism leads to generalized metabolic acidosis and eventually to organ failure and death if blood flow is not promptly restored.

Types of Shock

There are three general categories of shock that are based on the circulatory mechanisms involved. These mechanisms are intravascular volume, the ability of the heart to pump, and vascular tone.

Hypovolemic shock involves a loss of intravascular fluid volume that may be due to actual blood loss or relative loss from fluid shifts within the body.

Cardiogenic shock, also called *pump failure*, occurs when the myocardium has lost its ability to contract efficiently and maintain an adequate cardiac output.

Distributive or *vasogenic shock* is characterized by severe, generalized vasodilation, which results in severe hypotension and impairment of blood flow. Distributive shock is further divided into anaphylactic, neurogenic, and septic shock.

- *Anaphylactic shock* results from a hypersensitivity (allergic) reaction to drugs or other substances (see Chap. 18).