chapter **57**

Drugs That Affect Blood Coagulation

Objectives

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

1. Describe important elements in the physiology of hemostasis and thrombosis.
2. Discuss potential consequences of blood clotting disorders.
3. Discuss characteristics and uses of anticoagulant, antiplatelet, and thrombolytic agents.
4. Compare and contrast heparin and warfarin in terms of indications for use, onset and duration of action, route of administration, blood tests used to monitor effects, and nursing process implications.
5. Teach clients on long-term warfarin therapy protective measures to prevent abnormal bleeding.
6. Discuss antiplatelet agents in terms of indications for use and effects on blood coagulation.
7. With aspirin, contrast the dose and frequency of administration for antiplatelet effects with those for analgesic, antipyretic, and anti-inflammatory effects.
8. Describe thrombolytic agents in terms of indications and contraindications for use, routes of administration, and major adverse effects.
9. Discuss the use of anticoagulant, antiplatelet, and thrombolytic drugs in special populations.
10. Describe systemic hemostatic agents for treating overdoses of anticoagulant and thrombolytic drugs.

Critical Thinking Scenario

Juan Sanchez, a 56-year-old migrant farmer without health insurance, is admitted to the hospital after an episode of syncope. He is diagnosed with atrial fibrillation and is started on a calcium channel blocker and Coumadin. Before his discharge, you are responsible for patient teaching.

Reflect on:

- Assessment data that would be helpful to individualize your teaching plan.
- Discuss the rationale for use of Coumadin for clients with atrial fibrillation.
- Identify side effects of Coumadin therapy.
- Consider strategies that might help Mr. Sanchez comply with therapy and experience limited side effects.

OVERVIEW

Anticoagulant, antiplatelet, and thrombolytic drugs are used in the prevention and management of thrombotic and thromboembolic disorders. Thrombosis involves the formation (thrombogenesis) or presence of a blood clot (thrombus) in the vascular system. Blood clotting is a normal body defense mechanism to prevent blood loss. Thus, thrombogenesis may be lifesaving when it occurs as a response to hemorrhage; however, it may be life threatening when it occurs at other times, because the thrombus can obstruct a blood vessel and block blood flow to tissues beyond the clot. When part of a thrombus breaks off and travels to another part of the body, it is called an *embolus*.

Atherosclerosis is the basic disease process that often leads to pathologic thrombosis. It begins with accumulation of lipid-filled macrophages (ie, foam cells) on the inner lining of arteries. Foam cells develop in response to elevated blood lipid levels and eventually become fibrous plaques (ie, foam cells covered by smooth muscle cells and connective tissue). Advanced atherosclerotic lesions also contain hemorrhages, ulcerations, and scar tissue.

Atherosclerosis can affect any organ or tissue, but often involves the arteries supplying the heart, brain, and legs. Over time, plaque lesions become larger and extend farther into the lumen of the artery. Eventually, a thrombus may develop at plaque sites and partially or completely occlude an artery. In coronary arteries, a thrombus may precipi-