

# chapter 65

## Drugs Used in Ophthalmic Conditions

### Objectives

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

1. Review characteristics of ocular structures that influence drug therapy of eye disorders.
2. Discuss selected drugs in relation to their use in ocular disorders.
3. Use correct techniques to administer ophthalmic medications.
4. Assess for ocular effects of systemic drugs and systemic effects of ophthalmic drugs.
5. Teach clients, family members, or caretakers correct administration of eye medications.
6. For a client with an eye disorder, teach about the importance of taking medications as prescribed to protect and preserve eyesight.

### Critical Thinking Scenario

Jean Green, a 40-year-old accountant, has made an appointment to have her eyes examined because she has been having difficulty reading small print. She has not had her eyes tested for over 10 years. When she arrives at the office, you explain that the examination will include using medications to dilate her eyes and a test for glaucoma.

#### Reflect on:

- ▶ Age-related visual changes that often occur at midlife.
- ▶ Which drugs are used to dilate the eyes for examination, and how they work.
- ▶ Why glaucoma testing is important.
- ▶ What teaching is necessary for Mrs. Green.

### OVERVIEW

The eye is the major sensory organ through which the person receives information about the external environment. Extensive discussion of vision and ocular anatomy is beyond the scope of this chapter, but some characteristics and functions are described to facilitate understanding of ocular drug therapy. These include the following:

- The eyelids and lacrimal system function to protect the eye. The *eyelid* is a covering that acts as a barrier to the entry of foreign bodies, strong light, dust, and other potential irritants. The *conjunctiva* is the mucous membrane lining of the eyelids. The *canthi* (singular, *canthus*) are the angles where the upper and lower eyelids meet. The *lacrimal system* produces a fluid that constantly moistens and cleanses the anterior surface of the eyeball. The fluid drains through two small openings in the inner canthus and flows through the nasolacrimal duct

into the nasal cavity. When the conjunctiva is irritated or certain emotions are experienced (eg, sadness), the lacrimal gland produces more fluid than the drainage system can accommodate. The excess fluid overflows the eyelids and becomes *tears*.

- The eyeball is a spherical structure composed of the sclera, cornea, choroid, and retina, plus special refractive tissues. The *sclera* is a white, opaque, fibrous tissue that covers the posterior five sixths of the eyeball. The *cornea* is a transparent, special connective tissue that covers the anterior sixth of the eyeball. The cornea contains no blood vessels. The *choroid*, composed of blood vessels and connective tissue, continues forward to form the iris. The *iris* is composed of pigmented cells, the opening called the *pupil*, and muscles that control the size of the pupil by contracting or dilating in response to stimuli. The *retina* is the innermost layer of the eyeball.