

such as acetic acid and aluminum acetate otic (Domeboro Otic), ofloxacin otic (Floxin), and acetic acid (Vosol) can be administered directly into the ear to fight infections. In the case of swimmer's ear, they may be combined with a glucocorticoid to reduce associated inflammation. Examples of these combination drops are as follows: ciprofloxacin and dexamethasone otic (Ciprodex); hydrocortisone, neomycin, and polymyxin B otic (Cortisporin); and hydrocortisone and acetic acid (Vosol HC). Systemic antibiotics, such as amoxicillin (Amoxil, Trimox), amoxicillin and clavulanate potassium (Augmentin), sulfamethoxazole and trimethoprim (Bactrim, Septra), cefaclor (Ceclor), and erythromycin and sulfisoxazole (Pediazole), are needed for middle or inner ear infections.

Pain medications such as antipyrine and benzocaine (A/B otic, Aurodex, and Auroguard) may also be prescribed for the pain that accompanies trauma or infection.

### Medications for Cerumen and Motion Disorders

As discussed earlier, cerumen is a normal product of a healthy ear. Mineral oil, earwax softeners (cerumenolytics), and hydrogen peroxide can be used to decrease the amount of earwax if problems are occurring. Although earwax can protect the ear from infection, a buildup of earwax can decrease hearing, cause pain, and sometimes trap and promote growth of bacteria.

In addition to hearing, the ear is also responsible for balance. Motion sickness is caused by the ear's inability to determine the body's position relative to its motion. It can be treated with tablets or transdermal patches that are placed behind the ear. Medications such as Dramamine or Bonine should be taken 20 to 60 minutes before travel.

Drugs such as meclizine (Antivert), which is an anticholinergic, are given for dizziness, or **vertigo**, and the nausea that sometimes accompanies it.

## MEDICATIONS AND OTOTOXICITY

As discussed in Chapter 2, many drugs can cause **ototoxicity** (damage to ears). Commonly, this occurs with certain antibiotics such as gentamicin. Symptoms of ear damage include **tinnitus** (ringing in the ears), hearing loss, and severe headache, ataxia, and balance disturbances.



### CRITICAL THINKING

A patient is taking Abreva, Ecotrin (aspirin), Xanax, and a multivitamin. What is the first medication you should suspect when the patient complains of tinnitus?

## SUMMARY

- The eyes and ears provide critical sensory information to the brain.
- The eye is made up of many interconnected structures working together to provide clear vision.
- Conditions, disease, infections, and other irritants can disrupt sensory communication and cause pain and discomfort not only at the source but also systemically.
- Glaucoma is a term for a group of diseases that cause increased pressure in the eye that, if untreated, will lead to blindness.
- The basis of treatment for all types of glaucoma is the reduction of aqueous humor in the eye to decrease intraocular pressure (IOP).
- Medications to reduce IOP include miotics, prostaglandins, alpha and beta blockers, carbonic anhydrase inhibitors, and osmotic diuretics.
- Eye infections such as conjunctivitis and styes vary from minor to serious and must be treated with appropriate antibiotics.
- The ear is made up of three major parts: the outer, inner, and middle ear. These parts work together to provide hearing and balance.
- Otic medications include antibiotics, glucocorticoids, antivertigo drugs, cerumenolytics, and pain medications.