

Quinolones

Quinolones such as ciprofloxacin (Cipro) and ofloxacin (Floxin) are bacteriostatic (Drug Spotlight 17.1). Quinolone medications are considered broad-spectrum antibiotics because they are effective against a wide variety of microorganisms. In view of some very serious, although rare, side effects such as ruptured tendons, these medications tend to be reserved for more antibiotic resistant strains of bacteria. These drugs can be given by the IV route, ophthalmically, or orally. Oral quinolones are very useful in the treatment of chronic urinary tract infections. (Refer to the Master the Essentials table for a more complete list of quinolone medications.)

Sulfonamides

Sulfonamides are among the earliest classes of antibiotics. Drugs such as sulfadiazine, sulfamethizole (Thiosulfil Forte), sulfamethoxazole (Gantanol), sulfasalazine (Azulfidine), and sulfisoxazole (Gantrisin), as well as combination sulfonamide medications such as trimethoprim-sulfamethoxazole (Septra, Bactrim) and erythromycin-sulfisoxazole (Pediazole), are used to kill bacteria by interrupting their metabolism. Because these “sulfa drugs” tend to collect in the bladder before they are excreted, they are very effective in treating urinary tract infections. Many patients are allergic to sulfonamides and develop various severities of skin reactions, liver and kidney injuries, breathing difficulties, and decreased levels of red blood cells, white blood cells, and platelets. For this reason, it is important to pay close attention to any history of a sulfonamide antibiotic allergy when administering medications.

Antituberculosis Agents

Tuberculosis antibiotics treat the disease caused by *Mycobacterium tuberculosis*, which mainly affects the lungs. Tuberculosis was very well controlled until the 1980s, when the appearance of acquired immunodeficiency syndrome (AIDS) preceded a resurgence of the disease related to the increased numbers of patients with compromised immune systems. Tuberculosis is treated with a mixture of two to four daily medications simultaneously for up to 1 year. Each drug eradicates the mycobacterium in a different way. One of the medications is cycloserine (Seromycin), which prevents the tuberculosis bacteria from growing in the body. Rifampin (Rifadin, Rimactane) is another antibiotic commonly used to treat or prevent tuberculosis. This medication has one unique side effect of which patients and health-care workers must be aware: it turns body secretions, including sweat, tears, urine, feces, and saliva, red orange. If the patient wears contact lenses, this drug will permanently stain them. In addition, rifampin may render hormonally based birth control ineffective. (See the Master the Essentials table for a more complete list of antituberculosis agents.)

Antitoxins

Many bacterial diseases are caused by the toxins that the bacteria produce. Diphtheria, tetanus, and botulism are toxin-related diseases. Antitoxins are antibodies that are created in response to specific toxins. The antitoxins are able to counteract that toxin in a person at high risk for the disease or

Drug Spotlight 17-1 Cipro (ciprofloxacin hydrochloride)

Definition	Anti-infective used for bacterial infections; approved for use in patients exposed to the inhaled form of anthrax; used by thousands because of the anthrax by letter attacks in Washington, DC, Florida, and New York in 2001
Side effects	CNS effects: dizziness, confusion, tremors, hallucinations, depression; allergic reactions; pain or rupture of tendon; severe inflammation of the colon; increased sensitivity to sunlight
Special considerations	FDA discourages widespread use because of the risk of the development of drug-resistant microorganisms

CNS, central nervous system; FDA, Food and Drug Administration.

From Information on Cipro (Ciprofloxacin Hydrochloride) for Inhalation Anthrax for Consumers: Questions and Answers (11/14/2001). U.S. Department of Health and Human Services, Washington, DC, 2001.