Vancomycin is indicated only for the treatment of severe infections. Parenteral vancomycin has been used extensively to treat infections caused by MRSA and methicillin-resistant staphylococcal species non-aureus (SSNA, including *Staphylococcus epidermidis*) and endocarditis caused by *Streptococcus viridans* (in clients allergic to or with infections resistant to penicillins and cephalosporins) or *Enterococcus faecalis* (with an aminoglycoside). *Streptococcus pneumoniae* remain susceptible to vancomycin, although vancomycin-tolerant strains have been identified. The drug has also been widely used for prophylaxis of gram-positive infections in clients who are at high-risk of developing MRSA infections (eg, those with diabetes, previous hospitalization, or MRSA in their nasal passages) and who require placement of long-term intravascular catheters and other invasive treatment or monitoring devices. Oral vancomycin has been used extensively to treat staphylococcal enterocolitis and pseudomembranous colitis caused by *C. difficile.*

Partly because of this widespread use, vancomycin-resistant enterococci (VRE) are being encountered more often, especially in critical care units, and treatment options for infections caused by these organisms are limited. To decrease the spread of VRE, the Centers for Disease Control and Prevention recommend limiting the use of vancomycin. Specific recommendations include avoiding or minimizing use in empiric treatment of febrile clients with neutropenia (unless the prevalence of MRSA or SSNA is high); initial treatment for *C. difficile* colitis (metronidazole is preferred); and prophylaxis for surgery, low-birth-weight infants, intravascular catheter colonization or infection, and peritoneal dialysis.

For systemic infections, vancomycin is given intravenously (IV) and reaches therapeutic plasma levels within 1 hour after infusion. It is very important to give IV infusions slowly, over 1 to 2 hours, to avoid an adverse reaction characterized by hypotension and flushing and skin rash. This reaction, sometimes called *red man syndrome,* is attributed to histamine release. Vancomycin is excreted through the kidneys; dosage should be reduced in the presence of renal impairment. For bacterial colitis, vancomycin is given orally because it is not absorbed from the GI tract and acts within the bowel lumen. Large amounts of vancomycin are excreted in the feces after oral administration.

Nursing Process

Assessment

- Assess for infections that macrolides and the designated miscellaneous drugs are used to prevent or treat.
- Assess each client for signs and symptoms of the specific current infection.
- Assess culture and susceptibility reports when available.
- Assess each client for risk factors that increase risks of infection (eg, immunosuppression) or risks of adverse drug reactions (eg, impaired renal or hepatic function).

Nursing Diagnoses

- Deficient Knowledge related to type of infection and appropriate use of prescribed antimicrobial drugs
- Risk for Injury related to adverse drug effects
- Risk for Injury related to infection with antibiotic-resistant microorganisms

Planning/Goals

The client will:

- Take or receive macrolides and miscellaneous antimicrobials accurately, for the prescribed length of time
- Experience decreased signs and symptoms of the infection being treated
- Be monitored regularly for therapeutic and adverse drug effects
- Verbalize and practice measures to prevent recurrent infection

Interventions

- Use measures to prevent and minimize the spread of infection (see Chap. 33).
- Monitor for fever and other signs and symptoms of infection.
- Monitor laboratory reports for indications of the client's response to drug therapy (eg, white blood cells [WBC], tests of renal function).
- Encourage fluid intake to decrease fever and maintain good urinary tract function.
- Provide foods and fluids with adequate nutrients to maintain or improve nutritional status, especially if febrile and hypermetabolic.
- Assist clients to prevent or minimize infections with streptococci, staphylococci, and other gram-positive organisms.

PRINCIPLES OF THERAPY

Culture and Susceptibility Studies

Culture and susceptibility reports and local susceptibility patterns should be reviewed to determine if an antibiotic-resistant pathogen is present in the client. This is particularly important before starting vancomycin, quinupristin/dalfopristin, or line-

How Can You Avoid This Medication Error?

Your patient has vancomycin 1 g IV ordered for 0900. The pharmacy sends up a 250-cc IV bag with 1 g of vancomycin, to infuse over 1 hour. Your IV drip rate is 10 drops/cc. You calculate and regulate the IV rate at 42 drops per minute. When you return in 30 minutes, the entire 250 cc has infused into the patient and he appears very flushed and complains of feeling hot.