TABLE 170-3 COMMON ADVERSE REACTIONS TO ANTIBACTERIAL AGENTS

Antibacterial(s)	Potential Adverse Effects	Comments
β-Lactams	Hypersensitivity reactions	Range from rash to anaphylaxis. Cross-reactivity among β-lactams is related to chemical structure and side chain similarity.
	Neurotoxicity	More commonly described with cefepime and imipenem, but likely a class effect. Risk is increased in patients with history of seizures, renal impairment, and advanced age.
	Neutropenia/hematologic reactions	May be related to high doses and prolonged duration
Vancomycin	Nephrotoxicity	Risk increases with vancomycin trough levels >20 μg/mL or concomitant administration with other potentially nephrotoxic agents. The effect is usually reversible.
	"Red man syndrome"	Can be managed with a slower vancomycin infusion and pretreatment with antihistamine
Telavancin	QT prolongation	
	Interference with coagulation tests	May falsely affect INR, PT, aPTT. Perform these tests before the next dose of telavancin (when serum drug levels are at their nadir).
	Taste disturbances	
	Nephrotoxicity	
Oritavancin	Interference with coagulation tests	May falsely affect INR, PT, aPTT. Perform these tests at least 24 h after the dose was administered
Dalbavancin, oritivancin	Similar to vancomycin without "red man syndrome"	
Daptomycin	Myopathy	Monitor CPK levels during therapy. Rhabdomyolysis has been reported but appears to be rare.
	Eosinophilic pneumonia	
Aminoglycosides	Nephrotoxicity	Associated with prolonged use; usually reversible
	Ototoxicity	Can cause both vestibular and cochlear toxicity. Ototoxicity may be irreversible.
Fluoroquinolones	QTc prolongation	Moxifloxacin appears more likely than other quinolones to exert this effect. Risk of arrhythmia increases when these drugs are given concomitantly with other QTc-prolonging agents.
	Tendinitis	Risk is greater among elderly and patients receiving steroids.
	Dysglycemia	
	Exacerbation of myasthenia gravis	
Rifampin	Hepatotoxicity	Risk is greater when drug is given with other antituberculosis agents. When rifampin is given alone, LFT values may be transiently elevated without symptoms.
	Orange discoloration of body fluids	
Tetracyclines and glycylcyclines	Photosensitivity	
	Gastrointestinal distress	High incidence of diarrhea, nausea, vomiting
Macrolides	Gastrointestinal distress	Erythromycin is occasionally used as a therapeutic agent for some gastric motility disorders.
	QTc prolongation	Azithromycin use is associated with an increased risk of death from cardiovascular causes among patients at high baseline risk.
Metronidazole	Peripheral neuropathy	Associated with prolonged use
Clindamycin	Diarrhea and pseudomembranous colitis	
Linezolid, tedizolid	Myelosuppression	Associated with prolonged use
	Optic and peripheral neuropathy	Associated with prolonged use
TMP-SMX	Hypersensitivity reactions	Allergy usually associated with sulfonamide moiety
	Nephrotoxicity	Associated with high doses
	Hematologic effects	Associated with prolonged use
Nitrofurantoin	Pneumonitis and other pulmonary reactions	Associated with prolonged use
	Peripheral neuropathy	Associated with accumulation of nitrofurantoin in renal failure. Avoid use in renal impairment.
Fosfomycin	Gastrointestinal effects	
Polymyxins	Nephrotoxicity	Associated with high dose
	Neurotoxicity	Neuromuscular blockade and muscle weakness are well described and usually reversible.
Quinupristin-dalfopristin	Arthralgias and myalgias	
Chloramphenicol	Bone marrow suppression	Aplastic anemia or hematopoietic toxicity

Note: All systemic antibiotics have the potential to alter abdominal flora and induce *Clostridium difficile* infection.

Abbreviations: aPTT, activated partial thromboplastin time; CPK, creatine phosphokinase; INR, international normalized ratio; LFT, liver function test; PT, prothrombin time; TMP-SMX, trimethoprim-sulfamethoxazole.

and some Enterobacteriaceae, including *E. coli*, *Proteus mirabilis*, *Salmonella*, and *Shigella*. The aminopenicillins are hydrolyzed by many common β-lactamases. These drugs are commonly used for otitis media, respiratory tract infections, intraabdominal infections, endocarditis, meningitis, and urinary tract infections. The antipseudomonal penicillins include ticarcillin and piperacillin. These penicillin groups generally offer adequate anaerobic coverage; the exceptions are *Bacteroides* species (such as *Bacteroides fragilis*), which produce β-lactamases and are generally resistant. The rising prevalence of β-lactamase-producing bacteria has led to the increased use of β-lactam/β-lactamase inhibitor combinations, such as ampicillin-sulbactam, amoxicillin-clavulanate, ticarcillin-clavulanate, and piperacillin-tazobactam. The β-lactamase inhibitors themselves do not have antibacterial activity (with the exception of sulbactam, which has activity against *Acinetobacter baumannii*)