

TABLE 7. Common toxicities of systemic agents for treatment of opportunistic infections

Drug class	Drugs	Toxicities
Antifungal agents	Amphotericin B	Nephrotoxicity, infusion-related reactions, electrolyte imbalances, anemia, thrombophlebitis, nausea, and vomiting Lipid formulation might have lower incidence of nephrotoxicity and infusion-related reactions
	Caspofungin	Headache, thrombophlebitis, facial flushing, erythema, skin rash, and infusion-related reactions
	Flucytosine	Bone marrow suppression, diarrhea, nausea, and vomiting
	Fluconazole	Hepatotoxicity
	Itraconazole	Hepatotoxicity, congestive heart failure, edema, hypokalemia, nausea, vomiting, diarrhea, and abdominal pain
	Voriconazole	Visual disturbances, photosensitivity, skin rash, hepatotoxicity, peripheral edema, headache, and hallucination
Agents for treating <i>Pneumocystis jiroveci</i> pneumonia (PCP)	Atovaquone	Diarrhea, rash, nausea, vomiting, and headache
	Clindamycin	Diarrhea, pseudomembranous colitis, and rash
	Dapsone	Methemoglobinemia and hemolytic anemia (especially for patients with G-6-PD deficiency), neutropenia, rash, fever, hepatitis, hyperkalemia, and peripheral neuropathy
	Pentamidine	Nephrotoxicity, infusion-related hypotension and/or arrhythmias, pancreatitis, hypoglycemia, diabetes mellitus, hepatitis, and electrolyte abnormalities
	Primaquine	Methemoglobinemia and hemolytic anemia (especially in patients with G-6-PD deficiency), abdominal cramps, nausea, and vomiting
	Trimethoprim-Sulfamoxazole (TMP-SMX)	Rash, Stevens-Johnson Syndrome, bone marrow suppression, hepatotoxicity, increased serum creatinine, nausea, vomiting, and crystalluria
	Trimetrexate	Bone marrow suppression, stomatitis, fever, rash, and hepatitis
Antitoxoplasmosis agents (for atovaquone, clindamycin, and TMP-SMX, see agents for PCP)	Pyrimethamine	Neutropenia, thrombocytopenia, megaloblastic anemia, and rash
	Sulfadiazine	Rash, Stevens-Johnson syndrome, bone marrow suppression, crystalluria, renal insufficiency, nausea, and vomiting
Antimycobacterial agents	Amikacin	Nephrotoxicity and ototoxicity
	Azithromycin	Hepatotoxicity, ototoxicity, skin rash, urticaria, pruritus, nausea, vomiting, abdominal pain, and diarrhea
	Clarithromycin	Hepatotoxicity, ototoxicity, headache, nausea, vomiting, abdominal cramps, diarrhea, and skin rash
	Ciprofloxacin/Levofloxacin/Moxifloxacin	Nausea, vomiting, abdominal pain, diarrhea, headache, dizziness, sleep disturbances, crystalluria, renal impairment, tendonitis, photosensitivity, and neurotoxicity (especially with high dose or in patients with renal dysfunction)
	Cycloserine	Neuropsychiatric toxicities (headache, somnolence, vertigo, tremor, dysarthria, irritability, confusion, paranoia, and psychosis)
	Ethambutol	Optic neuritis, peripheral neuropathy, headache, nausea, vomiting, anorexia, hepatotoxicity, and hyperuricemia
	Isoniazid	Hepatotoxicity, peripheral neuropathy, ataxia, and optic neuritis
	Pyrazinamide	Hepatotoxicity, hyperuricemia, and arthralgia
	Rifabutin	Hepatotoxicity, uveitis, neutropenia, red-orange discoloration of body fluids, and skin rash
	Rifampin	Hepatotoxicity, red-orange discoloration of body fluids, thrombocytopenia, hemolytic anemia, and skin rash
Streptomycin	Nephrotoxicity and ototoxicity (especially vestibular toxicity)	

TABLE 7. (Continued) Common toxicities of systemic agents for treatment of opportunistic infections

Drug class	Drugs	Toxicities
Antiviral agents	Acyclovir	Crystalluria, nausea, vomiting, neurotoxicity (high doses, especially in patients with renal impairment; agitation, confusion, hallucination, seizure, coma), nephrotoxicity (particularly after rapid IV infusion), and thrombophlebitis at peripheral intravenous infusion site
	Adefovir	Increase serum creatinine, nausea, vomiting, and asthenia
	Cidofovir	Nephrotoxicity, proteinuria, ocular hypotony, anterior uveitis/iritis, neutropenia, metabolic acidosis, and asthenia Side effects most likely related to co-administration of probenecid: skin rash, nausea, vomiting, and anorexia
	Famciclovir	Headache, nausea, vomiting, and anorexia
	Foscarnet	Nephrotoxicity, electrolyte imbalances (hypocalcemia, hypomagnesemia, hypophosphatemia, hyperphosphatemia, hypokalemia), penile ulceration, nausea, vomiting, anorexia, headache, and seizure, thrombophlebitis, catheter-related infections
	Ganciclovir	Neutropenia, thrombocytopenia, anemia, catheter-related infections Oral ganciclovir: nausea, and vomiting
	Interferon- alfa and Peginterferon- alfa	Influeza-like syndrome (fever, headache, fatigue, and myalgia), neuropsychiatric disorders (depression and suicidal ideation), neutropenia, thrombocytopenia, thyroid dysfunction, injection site reactions, alopecia, nausea, anorexia, diarrhea, weight loss, development or exacerbation of autoimmune disorders, and ophthalmologic disorders (retinal hemorrhage, retinal artery or vein obstructions, and cotton wool spots)
	Lamivudine	Nausea, vomiting, and pancreatitis in children
	Ribavirin	Hemolytic anemia, leukopenia, hyperbilirubinemia, nausea, vomiting, anorexia, dyspepsia, and skin rash
	Valacyclovir	Nausea, vomiting, and headache; at a high dose of 8 g/day: thrombotic thrombocytopenic purpura/hemolytic uremic syndrome reported in advanced human immunodeficiency virus patients and in transplant recipients
	Valganciclovir	Neutropenia, thrombocytopenia, anemia, and nausea
Antiparasitic agent	Albendazole	Nausea, vomiting, hepatotoxicity, hypersensitivity, neutropenia, dizziness, and headache
	Benznidazole	Peripheral neuropathy, bone marrow suppression, and skin rash
	Fumagillin (investigational)	Oral therapy: neutropenia, thrombocytopenia, vertigo, nausea, vomiting, diarrhea, anorexia, and abdominal cramps Ocular therapy: minimal systemic effect or local effect
	Pentavalent antimony	Serum transaminase elevation, amylase, lipase elevations, pancreatitis, thrombophlebitis, prolonged QT interval and T-wave inversion, and arrhythmias
Treatment for syphilis	Ceftriaxone	Cholelithiasis, skin rash, bone marrow suppression, and injection site reactions (intramuscular administration)
	Doxycycline	Photosensitivity reaction, nausea, vomiting, and esophageal ulceration
	Erythromycin	Nausea, vomiting, abdominal pain, hepatotoxicity, cholestatic jaundice, ototoxicity (hearing loss, tinnitus), skin rash, and cardiac arrhythmia
	Penicillin G	All penicillin G preparations: hypersensitivity reactions (immediate or delayed reaction), bone marrow suppression, and drug fever Benzathine penicillin G: injection site reactions (pain and erythema) Procaine penicillin G : injection site reactions (pain and erythema) Aqueous crystalline penicillin G: thrombophlebitis and neurotoxicity at high doses (especially in patients with renal dysfunction)