Micafungin

Antibiotic Class:
Echinocandin

Antifungal Activity:
Candida sp. including azole-resistant strains. Activity against molds difficult to quantify but includes *Aspergillus* sp Table 1, Table 2

Mechanism of Action:
Non-competitive inhibition of the enzyme β-(1,3)-glucan synthase.

Pharmacodynamics:
Echinocandins have more fungicidal effects against *Candida* species compared to filamentous organisms. In-vitro studies have demonstrated concentration-dependent fungicidal activity against *Candida* sp.

Pharmacokinetics:
Half-life: 11.6-15.2 hours; Volume of distribution: 14L; Clearance (total): 13ml/min; Protein binding: 99%; Table 3

Adverse Effects:
Hepatic: mild elevation in liver transaminases – dose related and reversible upon discontinuation of drug, and bilirubinemia
Dermatologic: rash, pruritis,

Dosage:
Intravenous only – available as 50mg single use vials

Esophageal Candidiasis: 150mg I.V. q24h
Candida prophylaxis in hematopoetic stem cell recipients: 50mg I.V. q24h

Disease state based dosing:
Hepatic failure: In mild to moderate hepatic impairment, dosage adjustment is not necessary. Pharmacokinetic data are lacking in patients with severe hepatic failure.
Renal failure: No dosing adjustment necessary
Geriatric: No dosing adjustment necessary

Drug Interactions:
Sirolimus: Concomitant administration with caspofungin leads to a 21% AUC increase in sirolimus. Sirolimus levels should be monitored and adjusted.
Nifedipine: Concomitant administration with caspofungin leads to an 18% AUC increase in nifedipine. Monitoring for toxicity is recommended

Pregnancy:
Category C: Risk unknown. Human studies inadequate.

Monitoring Requirements:
Routine monitoring of hepatic enzymes is recommended

Brand names/Manufacturer: Mycamine/Astellas pharmaceuticals
Marketed as Mycamine in the United States
Marketed as Funguard in Japan