

Amphotericin B Liposomal

Brand names AmBisome

Medication error potential ISMP high-alert medication that has an increased risk of causing significant patient harm if it is used in error (liposomal forms of drugs).⁽¹⁾

The product name and dosage should be verified prior to dispensing and administration.

Look-alike, sound-alike drug names

USP reports that amphotericin B liposomal has been confused with amphotericin B; patient harm resulted.⁽²⁾ ISMP reports that AmBisome has been confused with amphotericin B.⁽³⁾ USP reports that AmBisome has been confused with Fungizone; no patient harm resulted.⁽²⁾ USP also reports that AmBisome has been confused with Abelcet; patient harm resulted.⁽²⁾

Contraindications and warnings Should not be used in patients with a hypersensitivity to any of the drug components.⁽⁴⁾

Infusion-related cautions Acute infusion-related reactions (chest pain; dyspnea; hypoxia; severe abdomen, flank, or leg pain; and flushing and urticaria) may occur within the first 5 minutes of infusion and are not related to infusion rate. Use diphenhydramine and infusion interruption to manage these acute reactions. Acute reactions (hypotension, fever and chills) that occur with conventional amphotericin B may still occur within 1–2 hours after the administration of liposomal amphotericin B but with decreased frequency.⁽⁴⁻⁶⁾

Anaphylaxis has been reported. Stop infusion immediately in cases of severe anaphylactic reaction.⁽⁴⁾

Patients who experience nonanaphylactic infusion-related reactions should receive premedication 30–60 minutes prior to administration with a nonsteroidal anti-inflammatory drug with or without diphenhydramine, OR acetaminophen with diphenhydramine, OR hydrocortisone.

Dosage

Empiric treatment of febrile neutropenic patients

Children and adolescents: 3 mg/kg/day^(7,8)

Solid organ and bone marrow transplant prophylaxis/treatment

Children and adolescents: 2–5 mg/kg/day over a mean of 25 days (range 5–90 days)⁽⁹⁻¹²⁾

10 mg/kg once weekly may provide useful prophylaxis against fungal infections as described in 14 children (4.5 months to 9 years of age) undergoing hematopoietic stem cell transplant.⁽¹³⁾

Systemic fungal infections (*Aspergillus sp.*, *Candida sp.*, and *Cryptococcus sp.*) in patients refractory or intolerant to conventional amphotericin B because of adverse effects, including nephrotoxicity

Neonates (term and preterm), infants, children, and adolescents: 3–5 mg/kg/day⁽¹⁴⁻²⁵⁾

Doses in neonates have been reported as high as 7 mg/kg/day.⁽²⁰⁻²²⁾ Up to 10 mg/kg/day in pediatric patients and 15 mg/kg/day in *adults* has been found to be well tolerated and effective for treatment of aspergillosis and other filamentous fungal infections.^(4,26)

Visceral leishmaniasis

Immunocompetent children and adolescents^(4,27-29): 3 mg/kg/day on days 1–5 and on days 14 and 21 of therapy. Alternatively, 4 mg/kg has been given on days 1–5 and on day 10 of therapy. Mediterranean visceral leishmaniasis has been successfully treated with 20 mg/kg given either as 4 mg/kg for 5 days or 10 mg/kg for 2 days.⁽²⁹⁾

Immunocompromised children and adolescents: 4 mg/kg/day on days 1–5 and on days 10, 17, 24, 31, and 38 of therapy⁽⁴⁾



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Dosage adjustment in organ dysfunction The need for dosage adjustment in hepatic impairment is not known. It has been given successfully to *adult* patients with preexisting renal impairment.⁽⁴⁾

Maximum dosage 10 mg/kg/day in children; 15 mg/kg/day in *adults*.^(4,26)

Additives Each vial contains 0.64 mg alpha tocopherol.^(4,30)

Suitable diluents The manufacturer recommends dilution in D5W.⁽⁴⁾ Another reference reports stability in D5W, D10W, D20W, and D25W.⁽³⁰⁾ Do not reconstitute with NS or add NS to the reconstituted concentration.

Maximum concentration 2 mg/mL^(4,30)

Preparation and delivery

Preparation: After reconstituting with SW and shaking vigorously, add desired dose of liposomal amphotericin B, using the 5-micron filter needle provided with each vial, to suitable diluent to make a final concentration of 1–2 mg/mL (more dilute concentrations of 0.2–0.5 mg/mL may also be used).^(4,30)

Stability: Administration should begin within 6 hours of dilution per the manufacturer.⁽⁴⁾

Delivery: Do not mix lipid-based amphotericin B products with other IV medications or saline or coadminister with other parenteral solutions containing saline or electrolytes.⁽¹⁸⁾ An inline filter that is ≥ 1 micron may be used.^(4,20) Flush line with D5W prior to infusion.

IV push Not recommended⁽⁴⁾

Intermittent infusion Infuse over 2 hours. May infuse over 1 hour in patients exhibiting no adverse effects.^(4,30)

Continuous infusion Not reported

Other routes of administration Not reported

Comments Hepatotoxicity has been reported.⁽¹⁴⁾

Hyperphosphatemia has been reported with liposomal amphotericin in patients receiving standard doses (5 mg/kg/day, $n = 2$) as well as high-dose therapy (10–25 mg/kg/day, $n = 3$). Underlying renal insufficiency may play a role. The phospholipid carrier is the presumed source of the phosphate. Liposomal amphotericin B provides 37 mg inorganic phosphate per 50 mg amphotericin, whereas amphotericin B lipid complex provides 6.8 mg per 50 mg drug.^(31,32)

Nephrogenic diabetes insipidus has been reported in three patients receiving high-dose (10 mg/kg/day) liposomal amphotericin B. Symptoms resolved after discontinuation of the drug.⁽³³⁾

Systemic liposomal amphotericin B in combination with liposomal amphotericin B central venous catheter lock therapy (3-mL solution of 8 mg drug in D5W with 200 units heparin) has successfully treated fungal central venous catheter infections in pediatric patients (6 months to 7 years of age).⁽³⁴⁾

REFERENCES

1. Institute for Safe Medication Practices. List of high-alert medications in the acute care setting. <https://www.ismp.org/recommendations/high-alert-medications-acute-list>. Accessed January 11, 2016.
2. Hicks RW, Becker SC, Cousins DD, eds. *MEDMARX Data Report. A Report on the Relationship of Drug Names and Medication Errors in Response to the Institute of Medicine's Call for Action*. Rockville, MD: USP Center for the Advancement of Patient Safety; 2008.
3. Institute for Safe Medication Practices. List of confused drug names. <https://www.ismp.org/recommendations/confused-drug-names-list>. Accessed January 11, 2016.

