PMB™

Polymyxin B Sulfate USP

Composition

PMB™ Injection: Each vial contains Polymyxin B sulfate USP sterile powder equivalent to 5,00,000 Units Polymyxin B .

Pharmacology

Polymyxin B Sulfate is a Lipopolypeptide antibiotic which is a surface active amphipathic agents. Polymyxin B Sulfate is isolated from *Bacillus polymyxa*. Polymyxins are rapidly bactericidal. It targets the bacterial cell membrane, interacts strongly with phospholipids within the cell membrane and acts in a detergent-like fashion to disrupt the structure of the bacterial cell membrane.

Indication

PMB™ is indicated for the treatment of patients with the following infections, when caused by susceptible strains of the designated aerobic gram negative bacteria:

- Urinary tract infections caused by *Pseudomonas aeruginosa* and *Escherichia coli*
- Bloodstream infections caused by *Pseudomonas aeruginosa*, *Enterobacter* (formerly called Aerobacter) aerogenes and *Klebsiella pneumoniae*
- Meningeal infections caused by *Pseudomonas aeruginosa*

PMB™ should be used where sensitivity suggests more commonly used systemic antibacterial agents may be contraindicated or ineffective because of bacterial resistance. In Meningeal Infection, Polymyxin B Sulfate USP should be administered only by intrathecal route.

Dosage & Administration

Method of reconstitution

Intravenous: Dissolve **PMB**™ Injection in 300 to 500 ml solutions for parenteral Dextrose injection 5% for continuous drip.

Intramuscular: Dissolve **PMB**™ Injection in 2 ml 0.9% Sodium Chloride solution. It is not recommended routinely because of severe pain at injection site, particularly in infants and children.

Intrathecal: Dissolve **PMB**™ Injection in 10 ml 0.9% Sodium Chloride solution for 50,000 units per ml dosage unit. In meningeal infections, Polymyxin B Sulfate USP should be administered only by the intrathecal route

Route	Patient group	Dose (Units/kg/day)	Dosage frequency/Duration
IV (Intravenous)	Adult & Children (Normal kidney function)	15,000-25,000 (Not exceed 25,000)	Infusions may be given every 12 hours over a period of approximately 60 to 90 minutes.
	Adult & Children (Renal impairment)	Less than 15,000	
	Infants (Normal kidney function)	Maximum 40,000	
IM (Intramuscular)	Adult & Children	25,000-30,000	Dose should be reduced in the presence of renal impairment. The dosage may be divided and given at either 4 or 6 hour intervals.
	Infants (Normal kidney function)	Maximum 40,000	
Intrathecal	Adults and children over 2 years of age		50,000 units once daily for 3 to 4 days, then 50,000 units once every other day for at least 2 weeks after cultures of the cerebrospinal fluid are negative and sugar content has returned to normal.
	Children under 2 years of age		20,000 units once daily, intrathecally for 3 to 4 days or 25,000 units once every other day. Continue with a dose of 25,000 units once every other day for at least 2 weeks after cultures of the cerebrospinal fluid are negative and sugar content has returned to normal.

Contraindication

Polymyxin B Sulfate is contraindicated in persons with a prior history of hypersensitivity reactions to Polymyxin B, bronchospasm, perforated ear drums (otic), myasthenia gravis, concurrent use with nephrotoxic and/or neurotoxic drugs and neuromuscular blockers.

Precaution

Baseline renal function should be done prior to therapy, with frequent monitoring of renal function and blood levels of the drug during parenteral therapy.

Adverse effects

Clostridium difficile associated Diarrhea has been reported with use of Polymyxin B. Nephrotoxic reactions: Albuminuria, Cylinduria, Azotemia, and rising Blood Urea Nitrogen levels, Neurotoxic reactions: Facial flushing, dizziness progressing to ataxia, drowsiness, peripheral Aresthesias (circumoral and stocking glove), Apnea due to concurrent use of Curariform muscle relaxants, other neurotoxic drugs or inadvertent over dosage, and signs of meningeal irritation with intrathecal administration, e.g., Fever, Headache, stiff neck. Other reactions occasionally reported: Drug fever, Urticaria rash, severe pain at IM injections sites and Thrombophlebitis at IV injections sites.

Use in Pregnancy and Lactation

Pregnancy

There are no controlled data in human pregnancy. Safety has not been established during pregnancy.

Lactation

There is no recommendation regarding use during lactation. There is no study whether it is secreted with human milk.

Drug interaction

The concurrent or sequential use of other neurotoxic and/or nephrotoxic drugs with Polymyxin B sulfate, particularly Bacitracin, Kanamycin, Streptomycin, Tobramycin, Amikacin, Cephaloridine, Cephalothin, Paromycin, Polymyxin E (Colistin), Neomycin, Gentamicin, and Vancomycin, Bumetanide, Celecoxib, Cisplatin, Cyclosporine, Diclofenac, Misoprostol, Diphenhydramine, Ibuprofen, Naproxen, Esomeprazole, Etodolac, general anesthetic, Gentamycin, Ketorolac, Meloxicam, Tenofovir etc. should be avoided.

Overdose

Polymyxin-induced toxicity associated with overdose has been reported. Overdose of Polymyxin can result in neuromuscular blockade, which can lead to Apnea, muscular weakness, vertigo, transient facial Paresthesia, slurred speech, vasomotor instability, visual disturbance, confusion, psychosis and possible respiratory arrest. Overdose can also cause renal failure characterized by decreased urine output and increased serum concentrations of BUN and creatinine. There is no specific antidote for Polymyxin B Sulfate overdose. In case of Polymyxin B Sulfate overdose, the drug should be stopped and symptomatic treatment instituted. Quick diuresis by IV administered mannitol may help to enhance renal clearance of the drug and thus to reduce serum drug levels. Hemodialysis or peritoneal dialysis may help in order to manage renal complications.

Pharmaceutical Precaution

Before reconstitution: Store below 25° C. Protect from light. After reconstitution: Reconstituted solutions should be stored under refrigeration (2-8°C) and the unused portion should be discarded after 24 hours.

How supplied

PMB™ Inj. : Each box contains one filled vial of Polymyxin B Sulfate USP equivalent to 5,00,000 Units Polymyxin B accompanied by one 10 ml 0.9% Sodium Chloride ampoule and one 10 ml disposable syringe.

Manufactured by

SQUARE
PHARMACEUTICALS LTD.
BANGLADESH