

Amikacin Sulphate

Introduction: Amikacin injection contains the active ingredient Amikacin sulphate, which is a member of the aminoglycoside family of antibiotics. It has the ability to kill a wide variety of bacteria.

Mechanism of action: The proposed mechanism of action of Amikacin is via inhibition of influenza virus neuraminidase with the possibility of alteration of virus particle aggregation and release.

Indications: This medication is an antibiotic used to treat a wide variety of serious bacterial infections, such as respiratory tract infections, skin infections, urinary tract infections, and infections of the blood, abdomen or bones. This medication must be given by injection since it is poorly absorbed if taken by mouth.

Dosage: In adults and children with normal renal function, Amikacin is administered intramuscularly as an intravenous bolus or by slow intravenous infusion in a dose of 5 mg/kg body weight given every 8 hours or 7.5 mg/kg body weight every 12 hours for a period of 7 to 10 days. Before the infusion 500 mg Amikacin is dissolved in 200 mg saline or other suitable solution. The infusion duration is 30 to 60 minutes. The maximum daily dose should not exceed 15 mg/kg body weight, and the total dose for one treatment course should be below 15 g. In newborn and prematurely born infants, the single initial dose of Amikacin is 10 mg/kg body weight. After this dose the treatment continues with a dose of 7.5 mg/kg body weight given every 12 hours during the following 7 to 10 days. Amikacin can be used in a single daily dose of 1 g intramuscularly or 15 mg/kg body weight intravenously. In patients with disturbed renal function, the dose should be reduced and Amikacin is injected at longer intervals to avoid possible accumulation. In these cases, dosage should be determined based on the creatinine clearance and the serum creatinine level.

Side effects: Most common side effects persist or become bothersome when using Amikacin:

- Breathing difficulty; loss of balance.

Severe allergic reactions (rash; hives; itching; difficulty breathing; tightness in the chest; swelling of the mouth, face, lips, or tongue); decreased urination; dizziness; hearing loss; lightheadedness; muscle weakness; numbness or tingling; ringing or roaring in the ears; vaginal irritation or discharge.

Precautions: Amikacin is potentially nephrotoxic, ototoxic and neurotoxic. The concurrent or serial use of other ototoxic or nephrotoxic agents should be avoided either systemically or topically because of the potential for additive effects. Increased nephrotoxicity has been reported following concomitant parenteral administration of aminoglycoside antibiotics and cephalosporins. Concomitant cephalosporins may spuriously elevate creatinine determinations.

Since Amikacin is present in high concentrations in the renal excretory system, patients should be well hydrated to minimize chemical irritation of the renal tubules. Kidney function should be assessed by the usual methods prior to starting therapy and daily during the course of treatment.

Pediatric Use: Aminoglycosides should be used with caution in premature and neonatal infants because of the renal immaturity of these patients and the resulting prolongation of serum half-life of these drugs.

Geriatric use: Elderly patients may have reduced renal function which may not be evident in routine screening tests such as BUN or serum creatinine. A creatinine clearance determination may be more useful. Monitoring of renal function during treatment with aminoglycosides is particularly important.

Pregnancy: This medicine should not be used in pregnancy as it may be harmful to the hearing of the developing baby. Seek medical advice from your doctor.

Nursing mothers: There is no information available regarding the safety of this medicine during breastfeeding. Seek medical advice from your doctor.

Contraindication: A history of hypersensitivity to amikacin is a contraindication for its use. A history of hypersensitivity or serious toxic reactions to aminoglycosides may contraindicate the use of any other aminoglycoside because of the known cross-sensitivities of patients to drugs in this class.

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