

عنوان مقاله:

Clinical Pharmacology of Meropenem in Neonates: Effects and Pharmacokinetics

محل انتشار:

شماره ۱۱ دوره ۴ فصل (سال: ۱۳۹۵)

تعداد صفحات اصل مقاله: ۱۵

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خلاصه مقاله:

Meropenem, a carbapenem antibiotic, has a broad-spectrum activity and is active against *Staphylococcus aureus*, *Streptococcus pneumoniae*, *Haemophilus influenzae*, *Moraxella catarrhalis*, gram-negative enteric bacilli as *Escherichia coli*, *Klebsiella*, *Enterobacter*, *Serratia* and *Pseudomonas aeruginosa*. Meropenem has excellent penetration in body tissues and in cerebrospinal fluid (in the presence of inflammation). Meropenem is bactericidal, because it inhibits transpeptidases responsible for peptidoglycan synthesis involved in cell formation and repair. Meropenem is approved for use in complicated intraabdominal infections, complicated skin and skin structure infections and bacterial meningitis in pediatric patients. The dose of meropenem is ۲۰ mg/kg by slow intravenous infusion once every ۱۲ hours in the first week of life and once every ۸ hours for infants older than this. Meropenem is predominantly excreted by renal route. After an administration of ۱۵ mg/kg meropenem twice-daily to premature infants, the mean total body clearance is ۰.۱۵۷ l/kg/h, the distribution volume is ۰.۷۴ l/kg, and the half-life is ۳.۴ hours. The %T> MIC is the percent time above minimum inhibitory concentration. After a dose of ۲۰ mg/kg t.i.d., the target value of ۵۰%T> MIC is achieved, indicating that ۲۰ mg/kg is effective for susceptible bacteria. In contrast, for bacteria with higher MIC such as *Pseudomonas aeruginosa* (MIC ≥ 2 $\mu\text{g/ml}$), the probability of target attainment of ۵۰%T> MIC is ۶۰.۷% at a dose of ۴۰ mg/kg t.i.d. The limited amounts of meropenem that cross the placenta are insufficient to treat infection in fetuses. The aim of this study was to review the effects and pharmacokinetics of meropenem in neonates.

کلمات کلیدی:

effects, Meropenem, Neonates, Pharmacokinetics

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