Introduction

Meropenem, a new parenteral carbapenem that is similar to imipenem/cilastatin, has been approved by the U.S. Food and Drug Administration as therapy for complicated intraabdominal infections in adults and pediatric patients and bacterial meningitis in children over 3 months of age. Like imipenem, meropenem is relatively resistant to hydrolysis by β-lactamases and is active against most clinically important gram-negative and gram-positive bacteria, including aerobic, facultative, and anaerobic forms. Meropenem is slightly more active against gram-negative organisms, and imipenem is slightly more active against gram-positive organisms. Animal studies and clinical experience to date indicate that meropenem is unlikely to cause seizures, which have been reported with use of imipenem.

This supplement covers various aspects of meropenem and its use, including in vitro activity, pharmacology and pharmacokinetics, and clinical evaluations. In addition, Hathorn and Lyke review empirical therapy for febrile neutropenia, Bradley and Scheld discuss the problem of penicillin-resistant Streptococcus pneumoniae and its impact on therapy for meningitis involving penicillin-resistant pneumococci, and Hitt et al. discuss “streamlining” antimicrobial therapy for patients with lower respiratory tract infections (“streamlining” is defined as converting a broad-spectrum empirical regimen to either a single narrow-spectrum parenteral agent or an oral agent).

In vitro data are covered in two papers: Pitkin et al. present data on the comparative activity of meropenem and other broad-spectrum antimicrobials against both randomly chosen and selected resistant clinical isolates, and Iaconis and colleagues compare the activity of meropenem and other antimicrobials against strains of Pseudomonas aeruginosa.

Five papers are devoted to the pharmacology and pharmacokinetics of meropenem. Craig provides a detailed, comprehensive report on the pharmacology of meropenem; Moon et al. discuss the pharmacokinetics of meropenem in animals, volunteers, and patients; Thyrum et al. provide data on the pharmacokinetics of meropenem in patients with liver disease; Condon and colleagues describe the penetration of meropenem in plasma and abdominal tissues of patients undergoing intra-abdominal surgery; and Gall and co-workers present data on the tissue penetration of meropenem in patients undergoing gynecologic surgery.

Finally, there are three papers on the use of meropenem in the management of selected clinical infections. Arrieta reviews recent literature covering the antimicrobial activity and pharmacokinetics of meropenem and places emphasis on its use in therapy for serious infections in children. Wilson presents data from a randomized, double-blind multicenter trial of meropenem vs. clindamycin plus tobramycin in the management of intra-abdominal infections; the two drug regimens were comparable in terms of clinical and bacteriologic response and with regard to side effects. Hemsell et al. present the results of a multicenter study comparing meropenem with clindamycin plus gentamicin as therapy for hospitalized patients with acute gynecologic and obstetric pelvic infections; both regimens were comparable in terms of efficacy and safety.

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