A Comparison of Doripenem and Meropenem MICs by European Methods Against 109 Gram-positive And Gram-negative Organisms


Abstract (Revised)

Background: Doripenem is a b-lactam antibiotic with broad-spectrum activity against Gram-negative (GN) and Gram-positive (GP) pathogens. This in vitro study was done to compare doripenem and meropenem MIC methods with the CLSI broth microdilution method (BMD), against a selection of GP and GN strains. Methods: Each of the sites tested their MIC method (France [F], Sweden [S], Germany [DIN], and Germany [DON]) and the CLSI method against the same set of 109 strains (S. aureus, E. faecalis, E. faecium, S. pneumoniae, E. coli, K. marxianus, P. mirabilis, H. influenzae, A. baumannii, and S. saprophyticus). Results: The geometric mean MICs of all strains for doripenem and meropenem were within 1 dilution for all methods. The difference in BSAC and CLSI was statistically significant, with BSAC MICs being lower. Conclusions: Doripenem MICs by all European methods, correlated well with the CLSI BMD method with the same selected set of strains.

Introduction

This study was performed to compare doripenem MIC results for a selection of Gram-positive and Gram-negative isolates as determined by the Société Française de Microbiologie (SF), Swedish Reference Group for Antibiotics (SciGAP), British Society for Antimicrobial Chemotherapy (BSAC) and Deutsches Institut für Normung (DIN) and the Clinical and Laboratory Standards Institute (CLSI) methods.

Methods

Antimicrobial Agents

Doripenem - 0.025-5 µg/mL

Testing Sites and Specific Method Tested

France - SFM; Sweden - CLSI; Germany - DIN, DON, SciGAP; France - SFM; Sweden - CLSI; Germany - DIN, DON, SciGAP

Microorganisms

The strains were selected and included 19 Staphylococci, 45 E. coli, 30 E. faecalis, 23 S. pneumoniae, 1 Streptococcus agalactiae, 10 H. influenzae.

Results

Comparison of Doripenem MICs to CLSI MICs in each country by organism group were: SFM MICs were similar or one dilution lower than CLSI. The geometric mean MICs were similar to CLSI and CLSI for all methods. Doripenem and meropenem MICs were similar for the other pathogens. Essential agreement compared to CLSI for doripenem were: SFM 100%, DIN 98.1%, DON 98.1%. The difference in BSAC and CLSI was statistically significant, with BSAC MICs being lower. The categorical laboratory reproducibility of the CLSI method was: SFM 100%, DIN 98.1%, DON 98.1%.

Conclusions

The geometric mean doripenem MICs for all strains were within one doubling dilution, with the exception of a slightly higher geometric mean for CLSI Sweden and a slightly lower geometric mean for BSAC.

Table 1: Geometric mean doripenem and meropenem MICs (µg/mL) by method and organism

Table 2: Dilution difference of doripenem MICs (µg/mL) by method and organism

References


