A Multi-Site Study of the Sensititre® Susceptibility System Compared With the CLSI Microdilution Method for MIC Determination of Gram-Negative and Gram-Positive Organisms vs Ceftaroline

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Abstract

Background: Ceftaroline (CPT) is a parenteral prodrug of ceftaroline furoate used for the treatment of infections due to aerobic gram-negative and gram-positive pathogens, including methicillin-resistant Staphylococcus aureus (MRSA) and some cephalosporin-resistant strains of Streptococcus pneumoniae (SP). Sensiti- tre Susceptibility System is a fully automated system that determines MICs for a wide variety of bacterial species. This study determined the reproducibility of MICs using the Sensititre® system compared with that of the CLSI microdilution method for a variety of gram-negative and gram-positive bacteria.

Materials and Methods: A total of 1265 freshly isolated clinical isolates were tested daily and were within the CLSI QC for 20 replicates of each ATCC strain, including E. coli, S. aureus, and E. faecalis. Testing consisted of 1265 fresh clinical isolates from 3 sites: Centers for Disease Control and Prevention, Wayne, PA; Cleveland, OH; and New York, NY. The Sensititre® broth microdilution method was used with Mueller Hinton broth. Each isolate was tested against ceftaroline. The QC level was ASTM-E2500 according to the CLSI guidelines.

Results: Results of QC testing were within ±1 well from mode (i.e., within ±1 log). The overall agreement for CPT MICs for a total of 75/75 isolates tested was 100.0%.

Conclusions: Determination of CPT MICs with the automated broth microdilution system including the Sensititre® Susceptibility System is reproducible and rapid for a variety of aerobic gram-negative and gram-positive bacteria. Essential agreement for the clinical and challenge isolates was 100.0% (AutoRead and manual read) using the ±1 log level of essential agreement obtained with AutoRead methods (Table 10).

Introduction

Materials and Methods

Sensitivity Testing Methods

- The CLSI reference broth microdilution method was used with Mueller Hinton broth.
- Testing consisted of 1265 fresh clinical isolates from 3 sites: Centers for Disease Control and Prevention, Wayne, PA; Cleveland, OH; and New York, NY. The QC level was ASTM-E2500 according to the CLSI guidelines.

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This study validates that the Sensititre® broth microdilution method is an equivalent level of infection control and prevention compared with that of the CLSI recommendation for testing cellparasites against gram-positive, gram-negative, and nonfastidious organisms.

References
