ABSTRACT

Background: Ceftobiprole is a broad-spectrum cephalosporin with an MLSA (MIC ≤ 0.25 µg/mL) activity approved for the treatment in several countries for the treatment of hospital-acquired pneumonia (including ventilator-associated pneumonia), and community-acquired pneumonia. We compared the susceptibility of aerobic and anaerobic pathogens, including ESBL producers, to ceftobiprole against other cephalosporins (including ceftriaxone, cefazolin, and cefepime).

Methods: From January 2015 to December 2016, bacterial isolates were collected from clinical laboratories in tertiary-care hospitals across Canada. Antimicrobial susceptibility testing was performed using E-test broth microdilution methods (Mycoplasma, 2015; MIC-229, 2016).

Results: GM0 isolates were collected from blood (45%); respiratory tract (26%); wound/fistula (25%); and urine/urinary tract (10%). MICs of ceftobiprole and comparators against selected pathogens are detailed in the table below.

INTRODUCTION

Ceftobiprole is a broad-spectrum IV antibiotic with rapid bactericidal activity against Gram-positive, Gram-negative anaerobic and aerobic pathogens resistant to penicillin, and susceptible Porphyromonas gingivalis (15), and against carbenicillin intermediate (CAI) and non-lactose fermenting (NLF) Salmonella (16). Ceftobiprole is active against multidrug-resistant Staphylococcus aureus (MDRSA) and resistant Porphyromonas gingivalis (15). Health Canada has approved ceftobiprole for the treatment of the elderly and older with hospital-acquired pneumonia (HAP), excluding ventilator-associated pneumonia (VAP), and for the treatment of community-acquired pneumonia (CAP). Ceftobiprole is also available for use in several European and non-European countries.

CONCLUSIONS

- Against methicillin-susceptible and methicillin-resistant S. aureus, ceftobiprole was more active than cefazolin.
- Against methicillin-susceptible and methicillin-resistant S. epidermidis, ceftobiprole was more active than cefazolin.
- Against penicillin-resistant S. pneumoniae and E. faecalis, ceftobiprole was more active than ceftazidime.
- Ceftobiprole was more active than ceftazidime against MRSA.
- Ceftobiprole was more active than ceftriaxone against P. aeruginosa.

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MATERIALS AND METHODS

Study Background - CANWARD

The isolates used in this study were obtained from January 2015 to December 2016, inclusive, from the participating universities, academic hospitals, and other centres across Canada (including HAP and VAP) submitted to the antimicrobial susceptibility testing (AST) laboratories in Canada. For the purpose of the study, only bacterial isolates were included in the study. Isolates were identified by their respective AST laboratories and identified in the NMBR database before testing. 

With the goal of providing real-time information to clinicians, AST was performed in a timely manner from AST laboratories at 1, 2, or 3 months, respectively.

Results: The study included 2,073 isolates from adults across Canada. The majority of isolates were collected from blood (45.2%); respiratory tract (25.7%); wound/fistula (23.9%); and urine/urinary tract (10%). MICs of Ceftobiprole and comparators against selected pathogens are detailed in the table below.

Table 1. Ceftobiprole in vitro activity against 2,073 aerobic gram-positive bacteria isolated from patients in Canadian hospitals in 2015-2016

Table 2. Ceftobiprole in vitro activity against 2,291 aerobic gram-negative bacteria isolated from patients in Canadian hospitals in 2015-2016

REFERENCES