Antimicrobial Activity of Ceftolozane-Tazobactam Tested Against Contemporary (2014-2016) P. aeruginosa Isolates from Hospitalized Patients with Bloodstream Infections and Pneumonia in European Medical Centres

Amended Abstract
Background: Ceftolozane-tazobactam (C-T) is an antibiotic combination consisting of a novel antipseudomonal cephalosporin and a well-established β-lactamase inhibitor that inhibits most Ambler class A and some class C enzymes. The drug was approved by the US Food and Drug Administration in 2014 and by the European Medicine Agency in 2015 for complicated urinary tract infections, acute pyelonephritis, and complicated intra-abdominal infections. The Program to Assess Ceftolozane-Tazobactam Susceptibility (PACTS) is a global surveillance program that monitors the in-vitro activity of C-T and beta-lactam resistance in Pseudomonas aeruginosa (PSA) isolates collected from bloodstream infections (BSI) and pneumonia in hospitalized patients (PHP) from 2014-2016 for this study.

Methods and Materials: A total of 2,006 PSA isolates (550 BSI, 1,456 PHP) were collected from 42 European hospitals and tested for susceptibility to C-T in a central monitoring laboratory, JMI Laboratories that followed CLSI broth microdilution methodology. Other antibiotics tested were amikacin (AMK), cefepime (CFP), ceftazidime (CAZ), cefotaxime (CTX), colistin (CML), doripenem (DOR), imipenem (IMP), meropenem (MER), piperacillin-tazobactam (TZP), tigecycline (TIC), and vancomycin (VCM).

Results: For PSA isolates, 90.7% were susceptible (S) to ≤4 mg/L C-T, 8.7% were S to ≥16 mg/L C-T. Compared to all other beta-lactams and β-lactam/β-lactamase inhibitors (β-L/β-L), C-T was more active than all comparators except COL against BSI and PHP PSA.

Materials and Methods

Introduction

Ceftolozane-tazobactam (C-T) is an antibiotic combination consisting of a novel antipseudomonal cephalosporin and a well-established β-lactamase inhibitor that inhibits most Ambler class A and some class C enzymes.

Conclusions:

- C-T demonstrated potent activity against BSI and PHP PSA isolated from European hospitals. PSA isolates were more susceptible to all drugs tested compared to BSI isolates. For BSI and PHP PSA, including MDR isolates, C-T was more active than all comparators except COL.

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MRD distributions of all PSA isolates from 2014-2016 are shown in Figure 2. C-T was more active than all comparators except COL against BSI and PHP PSA, including MDR and XDR isolates.

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