Comparison of Ceftazidime-Avibactam and Ceftolozane-Tazobactam In Vitro Activities when Tested against Gram-Negative Bacteria Isolated from Patients Hospitalized with Pneumonia in US Medical Centers (2017)

Helio S. Sader, Robert K. Flannin, Mariana Castanheira

JMI Laboratories, North Liberty, Iowa, USA

INTRODUCTION

The increasing frequency of patients with pneumonia is determined mainly by the understanding of causative pathogens, and there is little current information on the antimicrobial susceptibility of organisms from patients with community- and hospital-acquired pneumonia. Although Staphylococcus aureus is a significant cause of pneumonia in hospitalized patients, the proportion of patients who develop infections caused by Escherichia coli and Enterobacteriaceae species, mainly Klebsiella pneumoniae, Enterobacter spp., and Citrobacter spp. has increased. Commonly, the pathogens are multiresistant and the recent emergence of carbapenem-resistant Enterobacteriaceae (CRE) and carbapenem-resistant Acinetobacter baumannii (CRAB) has been reported internationally. The American Thoracic Society (ATS) and the European Medicines Agency (EMA) have issued recommendations that should be followed to contain the spread of CRE and CRAB.

-- Ceftazidime-avibactam is also approved to treat complicated intra-abdominal infections (including enteric infections).
-- Ceftazidime-avibactam is also approved to treat community-acquired pneumonia in combination with meropenem, as well as limited use in select settings of nosocomial pneumonia including ventilator-associated.

We evaluated the frequency and antimicrobial susceptibility of gram-negative bacteria isolated from patients hospitalized in 2017 currently used to treat pneumonia (INFORM Program; 2015–2017) and the results are summarized in this poster.

RESULTS

The most common organisms isolated from patients hospitalized with pneumonia were Pseudomonas aeruginosa (4.2%), Klebsiella pneumoniae (2.7%), and Staphylococcus aureus (2.2%). The authors of this study were not involved in the collection, analysis, or interpretation of data. Allergan had no involvement in the collection, analysis, or interpretation of data.

The most active agents against Enterobacteriaceae were ceftazidime-avibactam and ceftolozane-tazobactam, followed by cefepime and meropenem. The results are summarized in Figure 3.

-- The most active agents against Enterobacteriaceae were ceftazidime-avibactam (97.6%) and meropenem (99.6%), followed by piperacillin-tazobactam (97.8%) and cefepime (90.6%).

CONCLUSIONS

The results of this INFORM study are consistent with previously published reports of CRE and CRAB. The most active agents against Enterobacteriaceae were ceftazidime-avibactam and ceftolozane-tazobactam. The results are summarized in Figure 4.

The most active agents against Enterobacteriaceae were ceftazidime-avibactam (97.6%) and meropenem (99.6%), followed by piperacillin-tazobactam (97.8%) and cefepime (90.6%).

ACKNOWLEDGMENTS

The authors gratefully acknowledge the assistance of the following individuals for providing bacterial isolates:

-- Helio S. Sader, Robert K. Flannin, Mariana Castanheira

This study was supported by Allergan. Allergan was involved in the design and execution of this project. Allergan had no involvement in the collection, analysis, or interpretation of data.

REFERENCES