Revised Abstract

Introduction

Relebactam (formerly MK-7655) (REI) is a new beta-lactamase inhibitor of class B and class C carbapenemases, including KPCs, that is in development. REL restores the in vitro activity of imipenem (IMI) against Enterobacteriaceae and Pseudomonas aeruginosa. In this study we evaluated the in vitro activity of IMI/REL against a collection of gram-negative isolates from urinary tract infections (UTI) from the 2015 SMART surveillance program in North America.

Materials & Methods

27 hospitals in the US (20) and Canada (7) each collected up to 50 consecutive aerobic or facultative gram-negative pathogens from UTI. MICs were determined for 104 P. aeruginosa and 1,065 non-Enterobacteriaceae (NPE) using CLSI broth microdilution at a central laboratory [1, 2]. Protease were excluded due to intrinsic nonsusceptibility to IMI. REL was tested at a fixed concentration of 4 μg/mL in combination with IMI. The percent susceptible (I) was assessed using CLSI breakpoints [3]. IMI breakpoints of 1 μg/mL and 2 μg/mL (P. aeruginosa) were applied to REL/IMI.

Results

Table 1. Susceptibility of P. aeruginosa to imipenem-relebactam and comparators.

Table 2. Susceptibility of non-Enterobacteriaceae to imipenem-relebactam and comparators.

Conclusions

Relebactam exhibited strong potential for restoring the in vitro activity of imipenem against pathogens otherwise nonsusceptible to carbapenems, especially among P. aeruginosa. REL eliminated nonsusceptible NPE isolates were very rare among pathogens from UTIs in North America, which reduced the possible impact of imipenem-relebactam on this collection of UTI isolates. Further development of this compound could provide a valuable therapeutic option for treating infections caused by resistant gram-negative bacteria.

References and Acknowledgments:


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