Activity of the New Carbapenem-Lactam Inhibitor Combination WCK 5999 against Gram-Negative Isolates Producing Oxacillinases (OXAs)

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Abstract

The presence of carbapenemase-producing Enterobacteriaceae and Acinetobacter species is a growing concern globally. The combination of Meropenem (MIC ≤0.5 µg/mL) and WCK 4234 was evaluated against a global collection of >100 isolates producing OXAs. The clinical relevance of this combination was also assessed in 26 US hospitals.

Introduction

Oxacillinases (OXAs) are a broad class of enzymes that are responsible for the hydrolysis of β-lactam antibiotics. Oxacillinases can be acquired by bacteria through plasmid or chromosomal transfer, rendering them resistant to β-lactam antibiotics.

Results

Meropenem + WCK 4234 (MIC ≤4 µg/mL) was >64-fold more active than meropenem alone (MIC ≤0.5 µg/mL) against the majority of OXA-producing isolates tested. The activity of Meropenem + WCK 4234 was tested against the current FDA breakpoints for Enterobacteriaceae.

Conclusions

Meropenem + WCK 4234 is a potential new treatment option for OXA-producing isolates. The combination was more active than meropenem alone against OXA-producing isolates, including those isolates that were resistant or highly resistant to meropenem. Meropenem + WCK 4234 showed activity against a wide range of isolates, including those that were resistant to other carbapenems.

References


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