Ervacycline is Active Against MDR, Cephalexin- and Carbapenem-Resistant Enterobacteriaceae and Acinetobacter baumannii

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Abstract

Background: Ervacycline (ERV) is a novel, fully-synthetic fluorocycline antibiotic of the monobactam class being developed for the treatment of serious infections, including those caused by MDR pathogens. ERV shows in vitro activity against Gram-negative pathogens of concern, including 3rd/4th generation cephalosporin-resistant (CEPH-R) and carbapenem-resistant (CP-R) bacteria. (7)

Aim: The activity profile of ervacycline and comparators was determined against 490 clinical isolates, including molecularly characterized MDR (resistant to ≥3 antibiotic classes), as per 2015 CLSI criteria. A subset of cephalosporin and/or carbapenem resistant isolates were screened using published PCR conditions for blaVIM-1, blaIMP, and 106 isolates positive for metallo-β-lactamase genes. The MIC50/90 for ERV was 0.5/2 μg/mL for a subset of 416 molecularly characterized isolates.

Methods

In vitro antibacterial activity of ervacycline was evaluated across multiple surveillance and non-clinical studies using a composite database assembled and housed in vitro. MIC assays were performed as per CLSI methodology and data for ERV was analyzed across multiple non-clinical and recent surveillance studies using a composite database assembled and housed in vitro.

Results

The activity of ervacycline was determined against a subset of 416 molecularly characterized isolates from studies described in Table 1. MIC50/90 for ervacycline against these isolates was 0.5/2 μg/mL. MIC results for ervacycline from additional surveillance studies are described in Table 2. Table 3 presents a subset of bacterial activity against a wide variety of pathogens and pathogen families.

Conclusions

In vitro microbiology studies support ervacycline’s potential to address unmet medical needs in the treatment of serious infections caused by Gram-negative pathogens of concern, including ESBL-Enterobacteriaceae, CRE, CRAB, and MDR Acinetobacter.