Assessment of Eravacycline against a Recent Global Collection of 4,462 Enterobacteriaceae Clinical Isolates (2013-2014)

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Background/Significance: Eravacycline is a novel, fully synthetic fluorocycline antibiotic with broad-spectrum activity available in intravenous and oral formulations for the treatment of complicated intra-abdominal infections (cIAI) and complicated skin and skin structure infections (cSSSI). Eravacycline has demonstrated a significant activity against Gram-negative bacteria and shows promise for the treatment of infections caused by multidrug-resistant (MDR) Gram-negative bacteria. This study assessed the activity of eravacycline against a recent global collection of 4,462 clinical isolates of Enterobacteriaceae from Europe and the USA.

Methods: A total of 4,462 Enterobacteriaceae clinical isolates (collected from 2013-2014) were used. The isolates were from body fluid sources (n = 1277, 27.6%) of total), gastrointestinal sources (n = 1152, 25.1%), genito-urinary sources (n = 1073, 23.7%), respiratory sources (n = 1277, 27.6% of total), genito-urinary sources (n = 1113, 24%), respiratory sources (n = 1173, 25.1%), gastrointestinal sources (n = 1152, 23.7%), and blood sources (n = 90, 1.9% of total). Mininum inhibitory concentration (MIC) endpoints were determined by CLSI and according to the CLSI guidelines. Quality control testing was performed each day of testing as specified by the CLSI using Eravacycline stock ATCC, (USA) and ATCC (CA). Antibiotic susceptibility was determined using CLSI 2015 breakpoints, with the exception of tigecycline where FDA breakpoints were used (3).

Results: A total of 4,462 Enterobacteriaceae clinical isolates, eravacycline exhibited the lowest MIC90 of 0.5 μg/ml (2-fold lower than tetracycline) and 2-fold lower than tigecycline). Eravacycline activity was similar against isolates from the USA and Europe.

Conclusions: Data from the recently completed Phase 3 trials will be used in determining the clinical breakpoints. Eravacycline exhibited excellent activity against isolates from Europe and the USA and shows promise for the treatment of infections caused by Enterobacteriaceae.

References

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