Introduction

Resistance percentages for Gram-negative pathogens, including for carbapenem- and 3rd generation cephalosporin-resistant organisms, are high and increasing throughout Europe. In a recent report by the World Health Organization (WHO), carbapenem-resistant (CR) Enterobacteriaceae (EV) and CR-A. baumannii and CR- and 3rd-generation cephalosporin-resistant Enterobacteriaceae have been designated as two of three critical priority (Tier 1) global pathogens for which new antibiotics are urgently needed within Europe. Eravacycline (ERV) is a novel, fully-synthetic fluoroquinolone antibiotic being developed for the treatment of serious infections, including those caused by multidrug-resistant (MDR) pathogens. ERV is in phase 3 clinical development for the treatment of complicated intra-abdominal infections (cIAI) and complicated urinary tract infections (cUTI), including pyelonephritis. Previous global surveillance studies of eravacycline have demonstrated potent in vitro activity against many Gram-negative pathogens. The purpose of this study was to determine the in vitro activity of eravacycline and comparators against A. baumannii, Stenotrophomonas maltophilia and Enterobacteriaceae, including extended spectrum beta-lactamase (ESBL) and carbapenem-resistant (CR) phenotypes, isolated from patients in Europe.

Methods

- Enterobacteriaceae (N=1384), A. baumannii (N=772), and S. maltophilia (N=293) clinical isolates, collected from various body sites from hospitals in Europe in 2015, were tested.
- Breakdown by country and site of infection are given in Figures 1 and 2, respectively.
- Minimal inhibitory concentration (MIC) endpoints were determined by broth microdilution according to CLSI guidelines.
- Quality control testing was performed each day of testing as specified by the CLSI using Escherichia coli ATCC 25922 and E. coli ATCC 35218.
- ESBL was defined phenotypically according to CLSI guidelines (Escherichia coli, Klebsiella oxytoca, A. pseudomallei and P. aeruginosa only).
- CR was defined as isolates that were resistant to imipenem or meropenem.
- Antimicrobial susceptibility was determined using EUCAST version 6.0 breakpoints.

Results

- Clinical isolates were comparably represented among diverse geographic locations throughout Europe (Fig. 1), with the largest numbers isolated from Germany (15%), UK (12%) and Italy (10%).
- Most isolates were collected from respiratory and genito-urinary sources, followed by gastro-intestinal and other body fluid sources (Fig. 2).
- Summary MIC data for ERV and comparators are shown in Tables 1-3.

Conclusions

- The in vitro activity of eravacycline against A. baumannii, S. maltophilia and Enterobacteriaceae, including ESBL- and carbapenem-resistant phenotypes, is relevant to patients in Europe.

References

4. USP 2015. National Formulary, 37th edition. (It is understood that this reference is subject to approval by the US Pharmacopeial Convention.)
5. EUCAST version 6.0. Breakpoint tables for interpretation of MICs and zone diameters.