28th ECCMID EUROPEAN CONGRESS OF CLINICAL MICROBIOLOGY AND INFECTIOUS DISEASES
Madrid, Spain
21 – 24 April 2018

P0184 Cefiderocol, a novel siderophore cephalosporin: in vitro activity against Stenotrophomonos maltophillia isolated globally

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Background: *Stenotrophomonas maltophilia* is a Gram-negative, non-fermentative, environmental bacterium that has emerged as an important cause of nosocomial infection in immunocompromised hosts. *S. maltophilia* colonizes humid surfaces such as the tube used in mechanical ventilation and urinary catheters. *S. maltophilia* infections pose a serious clinical problem as therapeutic options are scarce, limited to sulfamethoxazole-trimethoprim and colistin. Cefiderocol (S-649266) is a novel siderophore cephalosporin for injection. Cefiderocol has potent activity against a variety of Gram-negative pathogens, including multidrug-resistant strains of *Pseudomonas aeruginosa* and *Acinetobacter baumannii*. In this study, *in vitro* antibacterial activity of cefiderocol was evaluated against global clinical isolates of *S. maltophilia* collected as part of SIDERO-WT-2015 and SIDERO-CR-2014/16 surveillance studies.

Materials/methods: A global collection of *S. maltophilia* isolates were identified and had susceptibility testing performed centrally at IHMA, Inc. (Schaumburg, USA). In all, 557 strains were tested, with the majority from respiratory tract specimens or blood [sputa (n=167; 30 %), endotracheal aspirates (n=122; 21.9 %), broncho alveolar lavages (n=81; 14.5 %) blood (n=38; 6.8 %)]. Susceptibility was determined by broth microdilution according to the Clinical and Laboratory Standard Institute guidelines. For the MIC determination of cefiderocol, iron-depleted CAMHB was used. Cefepime, ceftazidime-avibactam, ceftolozane-tazobactam, ciprofloxacin, colistin and meropenem were used as reference compounds. Sulfamethoxazole-trimethoprim was not included as a reference compound. Test isolates were collected from global countries in 2015 to 2016 by IHMA.

Results: Cefiderocol showed potent *in vitro* activity against *S. maltophilia*, with MIC_{90} of 0.5 mg/L, and 99.6% of strains were inhibited at ≤4 mg/L. Other β-lactams such as ceftazidime-avibactam, ceftolozane-tazobactam, and meropenem were not effective against S. maltophilia (MIC_{50}/MIC_{90}: 16/64, 16/>64, >64/>64 mg/L, respectively). The MIC_{50}/MIC_{90} of colistin was 1/>8 mg/L, and 28% of the isolates showed colistin MIC of >2 mg/L.

Conclusions: Cefiderocol showed potent antimicrobial activity against *S. maltophilia* including colistin resistant isolates. These data suggest that cefiderocol is a promising antibiotic for the treatment of infections caused by this problematic pathogen.