Antimicrobial Activity of WCK 4282 (High-Dose Cefepime-Tazobactam) Tested against Gram-negative Organisms from Medical Centers Located in the Asia-Pacific Region

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MATERIALS AND METHODS

ABSTRACT

Background: WCK 4282 (cefepime-tazobactam) is currently under clinical development for the treatment of infections caused by Enterobacteriaceae and Acinetobacter spp. SDD (Cefepime-tazobactam) was tested against Gram-negative isolates collected from the JMI Antimicrobial Surveillance Program.

Methods: A total of 4,360 unique patient isolates collected as part of a prospective, multi-center surveillance program were evaluated. MICs were determined using CLSI methodology as per CLSI M100-S22. 4/16 mg/L tazobactam was used to interpret SDD activity of WCK 4282 (Cefepime-tazobactam) tested against contemporary MIC distributions for Enterobacteriaceae spp. (94/14/5) non-ESBL phenotype (330/230/30) and Acinetobacter spp. (228/68/38) from Enterobacteriaceae and Acinetobacter spp. isolated from 252 (January 2016) sites located in 19 European nations, 983 isolates from hospitals located in 15 Chinese centers, and 850 isolates from hospitals located in 9 Japan centers. isolates from hospitals located in 8 APAC centers (APAC) and 9 China sites (China) were susceptible to cefepime-tazobactam (bactericidal at 4 mg/L) compared with reference breakpoint interpretations of ≥ 1,000 mg/L for MIC ≥ 8 mg/L. The isolates were collected in 2014, except China (2013).

Results: The most common isolated infection types were pneumonia (31%), bacteremia (21%) and surgical site infection (16%). The MIC distributions for cefepime and cefepime-tazobactam were similar between the LAB (Europe, China, APAC) and JMI sites. The SDD interpretative criteria essentially provides a 29.2% susceptible (CLSI) and 98.7% of strains at ≤ 4 mg/L for cefepime-tazobactam (vs. 84.8% of strains at ≤ 8 mg/L for cefepime). When tested against P. aeruginosa, cefepime-tazobactam activity (MIC; 4/16 mg/L) against cefepime susceptible (92.6 to 97.8%) accounted for almost 80% of the organisms.

CONCLUSIONS

Cefepime-tazobactam is a viable alternative to cefepime alone for the treatment of infections caused by Enterobacteriaceae and Acinetobacter spp. Isolates demonstrated potent activity against ESBL and non-ESBL Enterobacteriaceae and Acinetobacter spp., with 98.0% and 97.8% susceptible to cefepime-tazobactam (MIC ≤ 4 mg/L). When tested against P. aeruginosa, cefepime-tazobactam activity (MIC; 4/16 mg/L) against cefepime susceptible (92.6 to 97.8%) accounted for almost 80% of the organisms.

Table 1. Summary of cefepime-tazobactam activity stratified by geographic region.

Table 2. Activity of cefepime-tazobactam (FEP-TAZ) combinations (tazobactam at fixed 4 mg/L) and comparator agents tested against bacterial isolates from Europe, Asia-Pacific region and China.

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