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

P1822 Activity of omadacycline and comparators against Gram-positive and -negative clinical isolates (including resistant organism subsets) collected in 2017 from patients in European medical centres: SENTRY surveillance programme results

Michael Huband*[1], Michael A. Pfaller[2], Jennifer Streit[1], Helio S. Sader[1], Robert Flamm[1]

[1]JMI Laboratories, North Liberty, United States, *[2]JMI Laboratories and University of Iowa, United States*

Background: Omadacycline is a broad-spectrum aminomethylcycline antibiotic for treating acute bacterial skin and skin structure infections (ABSSSI) and community-acquired bacterial pneumonia (CABP) that recently completed Phase 3 clinical trials (oral and intravenous formulations). Omadacycline demonstrates potent activity against bacterial isolates commonly associated with ABSSSI, CABP, and urinary tract infections (UTI). Omadacycline retains activity against isolates expressing common tetracycline, penicillin, fluoroquinolone, and macrolide resistance mechanisms.

Materials/methods: Omadacycline was evaluated against bacterial isolates from patients in Europe (2017 SENTRY surveillance program). Clinical isolates including staphylococci (1,600), streptococci (702), enterococci (109), *Haemophilus influenzae* (270), *Moraxella catarrhalis* (138), and *Escherichia coli* (1,390) were collected (multiple infection types) during 2017 (1 isolate/patient/infection episode). A central laboratory confirmed isolate identifications using standard bacteriologic algorithms, MALDI-TOF, and/or molecular characterization. Susceptibility testing was performed according to reference (CLSI) broth microdilution methodology; results were interpreted per EUCAST breakpoints.

Results: Omadacycline demonstrated potent activity against *Staphylococcus aureus* (n=1,386; 19.2% MRSA) with $MIC_{50/90}$ values of 0.12/0.25 mg/L (Table). Omadacycline and tigecycline ($MIC_{50/90}$ values, 0.12/0.25 mg/L) were the most potent antimicrobials tested against MRSA whereas susceptibility to clindamycin (85.3%), erythromycin (43.6%), levofloxacin (26.3%), and tetracycline (87.6%) were compromised. Omadacycline was active against coagulase-negative staphylococci (CoNS, n=214; $MIC_{50/90}$ 0.12/0.5 mg/L), including MRCoNS. *Streptococcus pneumoniae* (n=479; 11.3% penicillin-resistant *S. pneumoniae* [PRSP]), β-haemolytic streptococci (n=188), and viridans group streptococci (n=35) were inhibited by low concentrations of omadacycline ($MIC_{50/90}$ 0.06/0.12 mg/L). All PRSP isolates were inhibited by omadacycline at ≤0.12 mg/L whereas susceptibility to azithromycin (38.9%), ceftriaxone (7.4%), clindamycin (55.6%), erythromycin (38.9%), and tetracycline (46.3%) was low. Omadacycline exhibited potent activity against enterococci (n=109; $MIC_{50/90}$ 0.12/0.25 mg/L), including vancomycin-resistant isolates. Vancomycin resistance rates were 1.5% and 14.3% against *E. faecalis* and *E. faecium*, respectively. *Haemophilus influenzae* (n=270; $MIC_{50/90}$ 0.5/1 mg/L) and *Moraxella catarrhalis* (n=138; $MIC_{50/90}$ ≤0.12/0.25 mg/L) were highly susceptible to omadacycline. *Escherichia coli* (omadacycline $MIC_{50/90}$ 0.5/2 mg/L) represented 48.2% of *Enterobacteriaceae* isolates collected, and 19.2% of *E. coli* isolates were ESBL-phenotype (omadacycline $MIC_{50/90}$ 1/2 mg/L).

Conclusions: Omadacycline demonstrated potent activity against clinical isolates commonly associated with ABSSSI, CABP, and UTI (including resistant organisms). These data support continued evaluation of omadacycline.

Organism	n	Omadacycline MIC mg/L	
		MIC_{50}	MIC_{90}
S. aureus	1,386	0.12	0.25
MRSA	266	0.12	0.25
Coagulase-negative staphylococci	214	0.12	0.5
Enterococcus spp.	109	0.12	0.25
S. pneumoniae	479	0.06	0.12
PRSP	54	0.06	0.12
β-haemolytic streptococci	188	0.06	0.12
Viridans group streptococci	35	0.06	0.12
H. influenzae	270	0.5	1
M. catarrhalis	138	≤0.12	0.25
E. coli	1,390	0.5	2
ESBL-phenotype *E. coli*	267	1	2