

Antimicrobial Characterization of CEM-101: Activity Against Staphylococci, Beta-Haemolytic and Viridans Group Streptococci

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R. Jones, H. Sader, D. Biedenbach

JMI Lab, North Liberty, IA

Objectives:

To address therapy of MLS_B-resistant (R) species, CEM-101 (a new macrolide-ketolide), was developed with enhanced potency against wildtype (WT) respiratory tract (RTI) and cutaneous (SSSI) pathogens. Results of CEM-101 susceptibility (S) testing against 452 staphylococci and selected streptococci are described here.

Methods:

A collection of 2006-2007 clinical isolates were S tested by CLSI methods (M7-A7) with associated interpretive criteria (M100-S18) and supplements (2-5% LHB) for streptococcal tests. CEM-101, telithromycin (TEL) and 10 comparators were used versus 201 *S. aureus* (75 WT-MRSA, 75 WT-MSSA, 30 CA-MRSA, 17 VISA or hVISA, 7 VRSA), 100 coagulase-negative staphylococci (CoNS; 10 species), 100 Beta-haemolytic (BHS; 30 group A, 31 group B, 14 group C, 9 group F, 16 group G) and 51 viridans group streptococci (VGS; 5 species), see Table.

Results:

MSSA strains were slightly more CEM-101-S (MIC₅₀, 0.06 mg/L) than MRSA or CA-MRSA strains (MIC₅₀, 0.12 mg/L). VISA, hVISA and VRSA were generally more refractory to CEM-101 and TEL. CEM-101 was 2-fold more potent than TEL against all staphylococci. Streptococci were very S to CEM-101 (MIC₉₀, 0.03-0.06 mg/L) and TEL was 4-fold less active with non-S isolates of BHS observed. ERY-R staphylococci remained CEM-101-S except for TEL- and clindamycin (CC)-R isolates, but all BHS and VGS were S to CEM-101.

Organisms (no.)	CEM-101 MIC (mg/L)			Telithromycin MIC (mg/L)		
	50%	90%	Range	50%	90%	Range
MSSA (75)	0.06	0.12	0.03->16	0.12	0.25	0.06->16
MRSA (75)	0.12	>16	0.03->16	0.25	>16	0.06->16
CA-MRSA (30)	0.12	0.12	0.06-0.12	0.25	0.25	0.12-0.5
VISA, hVISA (14)	>16	>16	0.06->16	>16	>16	0.25->16
VRSA (7)	>16	-	0.12->16	>16	-	0.12->16
CoNS (100)	0.06	>16	0.03->16	0.12	>16	0.03->16
BHS (100)	0.015	0.03	<=0.008-0.12	0.03	0.12	<=0.008-2
VGS (51)	<=0.008	0.06	<=0.008-0.12	0.015	0.25	<=0.008-0.5

Conclusions:

CEM-101, a novel macrolide-ketolide, was potent against all staphylococci (MIC₅₀, 0.06 mg/L), except CC-R strains; and inhibited all streptococci at ≤0.12 mg/L. The activity was greater than TEL by 2- to 4-fold. CEM-101 warrants further development for RTI and SSSI indications.