

Contemporary Antimicrobial Activity of CEM-102 (Fusidic Acid [FA]) Against Canadian Isolates of Staphylococci and Streptococci (2001-2006)

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Background:

FA is a steroidal antimicrobial agent utilized against Gram-positive (GP) pathogens with a mode of action preventing bacterial protein synthesis. FA has been used worldwide (not USA) as an effective treatment of skin and skin structure infections as well as bone and joint infections.

Methods:

To determine a contemporary susceptibility (S) spectrum pattern, 153 GP isolates (123 *S. aureus*, 15 coagulase-negative staphylococci [CoNS] and 15 *S. pyogenes* [SPYO]) were collected from 5 Canadian medical centers between 2001 and 2006. Reference broth microdilution (BMD) S testing was performed by CLSI M07-A8, 2009 methods for FA and 13 comparator antimicrobials.

Results:

FA MIC results for *S. aureus* had MIC₅₀ and MIC₉₀ values of 0.12 µg/ml for the 2001-2002 and 2003-2004 time periods, however, for 2005-2006 the MIC₉₀ increased to ≥2 µg/ml. Applying an international breakpoint from literature reviews at ≤0.5 µg/ml (S) and ≥2 µg/ml (R), the *S. aureus* isolates showed a small increase in the R rate over time (5.0-12.2%), not confirmed by 2007-2008 results (ICAAC abstract, 2009). The overall *S. aureus* population had a MIC₉₀ of 0.25 µg/ml and R rate of 8.1%. Some comparator agents showed higher R rates that remained stable over the period tested with highest R noted for erythromycin (ERY, 52.0%), ciprofloxacin (43.9%), and clindamycin (CLI, 28.5%). CoNS isolates had FA MIC₅₀ and MIC₉₀ values at 0.12 and 16 µg/ml, respectively. SPYO isolates were only moderately S to FA with all values at 4 or 8 µg/ml. Among the comparator agents, ERY had a R rate of 20.0% and CLI at 13.3% for SPYO.

Conclusions:

FA demonstrated potent activity against Canadian staphylococci isolates with a low overall R rate (8.1%) among *S. aureus*, even though FA has been used clinically for more than two decades. CoNS isolates had a greater R rate than *S. aureus*. FA had a narrow range of MIC results (4-8 µg/ml) and was less active against SPYO.

<i>S. aureus</i> (years tested)	No. inhibited at MIC (µg/ml) of:							% at ≤0.5 ^a
	≤0.03	0.06	0.12	0.25	0.5	1	≥2	
2001-2002	-	8	29	1	-	-	2	95.0
2003-2004	-	6	33	-	-	-	3	92.9
2005-2006	-	2	32	2	-	-	5	87.8

a. 6.0% R for 2007-2008.