

Prevalence of SCCmec Types and Solithromycin Susceptibility of Methicillin-resistant *Staphylococcus aureus* (MRSA) from Respiratory Samples Collected in 2012-13

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Objectives: Solithromycin is a fourth generation macrolide, the first fluoroketolide being developed in oral and intravenous formulations, that is currently undergoing Phase III clinical development for the treatment of community-acquired bacterial pneumonia. This study evaluated the prevalence of SCCmec types associated with MRSA causing respiratory infections in 2012-13 and the *in vitro* activity of solithromycin (SOL) and comparators against these isolates.

Methods: A total of 412 respiratory MRSA were evaluated from Europe (175), North America (169), Asia-pacific (24) and the rest of the world (44). MRSA were re-identified in a central laboratory and SCCmec type determined by PCR [Milheirico *et al Antimicrob Agents Chemother* 2007 51:3374]. MIC for solithromycin and comparators was determined by CLSI broth microdilution methodology.

Results: The most common SCCmec was IV (199 MRSA, 48.3%), followed by II (112, 27.2%), III (52, 12.6%), I (37, 9.0%) and V (3, 0.7%). Nine MRSA (2.2%) were novel SCCmec types. MIC₅₀ for azithromycin (AZI), levofloxacin (LFX), SOL, trimethoprim-sulfamethoxazole (SXT) and tigecycline (TGC) against the major SCCmec types are shown in the Table. AZI and LFX were inactive against all MRSA irrespective of SCCmec. SXT and TGC were equally active against all MRSA. SOL was active against the most common SCCmec type IV and type III but not I or II.

SCCmec type	MIC ₅₀ (mg/L):				
	SOL	AZI	LFX	SXT	TGC
All (412)	16	>4	>2	<=0.5	0.25
IV (199)	0.12	>4	>2	<=0.5	0.12
II (112)	>32	>4	>2	<=0.5	0.25
III (52)	0.12	>4	>2	<=0.5	0.25
I (37)	>32	>4	>2	<=0.5	0.25

Conclusions: As SCCmec IV is linked with community-associated isolates of MRSA, whereas types I and II are associated with hospital-acquired MRSA, these data suggest that solithromycin may be suitable for the treatment of community-associated respiratory infections caused by MRSA.