Activity of Solithromycin Tested Against Pathogens Associated with Community-acquired Bacterial Pneumonia: Global Surveillance Results for 2014

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ABSTRACTED

Background: Solithromycin (SOL) is a fluoroquinolone with wide-spectrum activity against pathogens associated with community-acquired bacterial pneumonia (CABP). In vivo studies show SOL has a potency generally equal to or two-fold greater than azithromycin against several pathogens (e.g., Streptococcus pneumoniae, Haemophilus influenzae, Moraxella catarrhalis, Staphylococcus aureus [SA], methicillin-resistant SA [MRSA]). In vitro, SOL has demonstrated activity against Gram-negative and Gram-positive pathogens, including multidrug resistant (MDR) strains. In this study, we report surveillance results from 2014 to continue to monitor the activity of SOL against pathogens associated with CABP.

MATERIALS AND METHODS

A total of 6,622 isolates were tested prospectively, during 2014 from clinical laboratories located in the USA (2,950 isolates), Europe (1,656 isolates), Latin America (60) (including six in Brazil), and Asia (1,990 isolates). SOL was used in the presence of ß-lactamate inhibitor (BLI), to determine its activity against macrolide-resistant Enterococcus faecalis (MRE), and to test the activity of SOL in the presence of macrolide-resistant Enterococcus faecium (MRF) to assess susceptibility (created by CLSI broth supplementation method). The CLSI broth supplementation method (5MC; 577), MRL (MRL - SOL), and MRF (MRF - SOL) with SOL and azithromycin, MIC results were obtained using Clinical and Laboratory Standards Institute (CLSI)

RESULTS

- Solithromycin was very active (MIC90 ≤0.015 µg/mL) against 17.3% of Streptococcus pneumoniae, 17.0% of Haemophilus influenzae, 15.0% of Moraxella catarrhalis, and 10.5% of methicillin-resistant Staphylococcus aureus (MRSA). Against Streptococcus mitis (SMI), streptolysin (SL), and other anaerobic streptococci, 90.7% inhibition of the isolates tested by the BLI broth method was demonstrated. In general, SMI, SL, and other anaerobic streptococci were inhibited by at least 50% by SOL at ≤0.015 µg/mL. Against Enterococcus spp., SOL was very active (MIC90 ≤0.015 µg/mL) with 90.7% inhibition of the isolates tested. Against methicillin-resistant Enterococcus faecalis (MRE), 99.5% inhibition of the isolates tested indicated the activity of SOL. Against methicillin-resistant Enterococcus faecium (MRF), 99.4% inhibition of the isolates tested indicated the activity of SOL. Against MRSA, SOL was very active (MIC90 ≤0.015 µg/mL) with 93.3% inhibition of the isolates tested. These results indicate that SOL is an appropriate therapeutic agent for CABP.

- Figure 1: Predicted and actual activity against 1.75×1.75×0.5 mm2 Vitek MRSA 2 plates against E. coli ATCC 25922, Enterococcus faecalis ATCC 29212, Staphylococcus aureus ATCC 25923, and S. pneumoniae ATCC 49615.

- Table 1: Frequency distribution of SOL when tested against enterococci as part of the global surveillance program for 2014.

- Table 2: Activity of solithromycin and ceftriaxone when tested against enterococci as part of the global surveillance program for 2014.

- Table 3: Activity of solithromycin and ceftriaxone when tested against Gram-positive cocci as part of the global surveillance program for 2014.

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REFERENCES


CONCLUSIONS

- Solithromycin demonstrates potent activity against global and contemporary emerging strains of CABP, including against most macrolide and tetracycline-resistant strains of CABP, including against most macrolide-resistant Enterococcus spp.

- Similar to surveillance studies from previous years, solithromycin was the most potent antimicrobial agent tested against S. pneumoniae.

- These data support and encourage the continued development of solithromycin for the treatment of community-acquired bacterial pneumonia.

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