Activity of Solithromycin and comparators against Streptococci isolated from Respiratory Samples Collected in 2012-2013

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Revised Abstract

Background: Solithromycin is a fourth-generation macrolide, the first fluoroketolide that is under development in oral and intravenous formulations in Phase 3 clinical trials for the treatment of moderate to moderately-severe community-acquired bacterial pneumonia. This study evaluated the in vitro activity of solithromycin against respiratory streptococcal isolates collected in Europe, Asia-Pacific and North America during 2012-2013.

Methods: A total of 1,070 streptococci, 927 S. pneumoniae and 143 S. pyogenes, were collected from Europe, Asia-Pacific and North America. Isolates were tested in a central laboratory with MIC and susceptibility for solithromycin and comparators determined according to CLSI broth microdilution methodology and breakpoints.

Results: Solithromycin showed good activity against isolates from the different regions with MIC₉₀ ranging from 0.06-0.5 mg/L for S. pneumoniae and S. pyogenes, respectively. These data positively support the continued development of solithromycin for the treatment of respiratory infections caused by streptococci.

Conclusions: Solithromycin showed very good activity against isolates from the different regions with MIC₉₀ ranging from 0.06-0.5 mg/L, for pneumococci and S. pyogenes, respectively. These data positively support the continued development of Solithromycin for the treatment of respiratory infections caused by streptococci.

Introduction

Solithromycin is a fluoroketolide available in both oral and intravenous formulations. It is being developed for the treatment of community-acquired bacterial pneumonia (CAPB) and urosepsis. Solithromycin is currently undergoing Phase 3 clinical trials for the treatment of moderate to moderately-severe CAPB. Phase 2 clinical trial data showed solithromycin to be equivalent to levofloxacin in efficacy and to have a more favourable safety profile.

This study evaluated the in vitro activity of solithromycin against more than 1000 respiratory streptococcal isolates collected in Europe, Asia-Pacific and North America during 2012-2013.

Materials & Methods

- A total of 927 S. pneumoniae and 143 S. pyogenes tested from Europe, Asia-Pacific and North America (Table 1).
- Isolates were identified to the species level and MICs determined at a central testing laboratory (IHMA Europe, located in Epalinges, Switzerland).
- Minimum inhibitory concentrations (MICs) were determined by the Clinical and Laboratory Standards Institute (CLSI) recommended broth microdilution method using panels prepared at IHMA.
- MIC interpretive criteria mainly followed published guidelines of CLSI published in 2013 [3], but for tigecycline FDA breakpoints were used [4]. Provisional breakpoints of 1, 2 and 4 mg/L were used for solithromycin against S. pneumoniae.
- Quality controls were performed on each day of testing using appropriate ATCC control strains, following CLSI and manufacturer guidelines.

Results

Summary MIC and susceptibility data for solithromycin and comparators against 143 S. pneumoniae and 143 S. pyogenes isolated from Europe, North America and Asia-Pacific are given in Tables 2 and 3. The cumulative percentage MIC distributions for solithromycin are compared for each species by world region in Figures 1 and 2.

Conclusions

- Solithromycin showed very good activity against S. pneumoniae and S. pyogenes with MIC₉₀ ≤ 0.5 mg/L for all the regions of the world included in this study, Europe, North-America and Asia-Pacific.
- For both species, MIC₉₀ Europe < MIC₉₀ North America < MIC₉₀ Asia-Pacific.
- Solithromycin was considerably more active than macrolides and penicillins against S. pneumoniae and more active than macrolides against S. pyogenes.
- Solithromycin was also more active than telithromycin.

These data show that solithromycin could be a good alternative to treat respiratory infections caused by S. pneumoniae and S. pyogenes especially in regions of the world like Asia where there is a very high level of resistance to macrolides and penicillins and thus strongly support the continued development of this antibiotic.

References


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