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

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**Background:** Solithromycin is a fourth-generation oral and intravenous macrolide, the first fluoroketolide, that is currently undergoing Phase III clinical development for the treatment of community-acquired bacterial pneumonia. This study evaluated the in vitro activity of solithromycin against respiratory isolates of Streptococcus pneumoniae (SPN) and S. pyogenes (SPY) collected in Europe during 2012.

**Methods:** Hospitals in Belgium (N=3), Czech Republic (3), Denmark (1), France (5), Germany (7), Greece (2), Hungary (1), Italy (7), Netherlands (1), Portugal (2), Russia (4), Spain (6), Sweden (2) & Turkey (3) provided a total of 501 respiratory isolates. These were re-identified in a central laboratory with MIC and susceptibility for solithromycin and comparators determined according to CLSI broth microdilution methodology and breakpoints (except a susceptible breakpoint of ≤ 0.25 μg/ml was used for tigecycline).

**Results:** Summary MIC (μg/ml) and percent susceptible (%S) data are shown in the Table:

<table>
<thead>
<tr>
<th>Country</th>
<th>N</th>
<th>3</th>
<th>≤0.06</th>
<th>&gt;0.06</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>3</td>
<td>53</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>3</td>
<td>77</td>
<td>7</td>
<td>100</td>
</tr>
<tr>
<td>Denmark</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Italy</td>
<td>5</td>
<td>58</td>
<td>8</td>
<td>100</td>
</tr>
<tr>
<td>Netherlands</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Sweden</td>
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<td>100</td>
</tr>
<tr>
<td>Turkey</td>
<td>3</td>
<td>33</td>
<td>4</td>
<td>100</td>
</tr>
</tbody>
</table>

**Materials & Methods**

- A total of 418 S. pneumoniae and 83 S. pyogenes were tested from 47 sites in various European countries (Table 1). These were collected from respiratory infections.
- Isolates were identified to the species level and MICs determined at a central testing laboratory (IHMA Europe, located in Epalinges, Switzerland). Organism collection, transport and development and management of a centralized database were also coordinated by IHMA.
- Minimum inhibitory concentrations (MICs) were determined by the Clinical and Laboratory Standards Institute (CLSI) recommended broth microdilution testing method using panels prepared at IHMA (2).
- MIC interpretive criteria mainly followed published guidelines of CLSI published in 2013 (3), but for tigecycline FDA breakpoints were used (4).
- Quality controls were performed on each day of testing using appropriate ATCC control strains, following CLSI and manufacturer guidelines. Results were included in the analysis only when corresponding QC results were within the acceptable range (5).

**References**


**Acknowledgements**

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**Conclusions**

- Solithromycin showed very good activity against S. pneumoniae and S. pyogenes with all MICs ≤ 0.5 μg/ml or less, including macrolide- and penicillin-resistant strains.
- Solithromycin was considerably more active than the older macrolides and was generally one dilution more active than tigecycline.
- Resistance to older macrolides was observed for 27 to 27.8% of S. pneumoniae and 8.4 to 9.6% of S. pneumoniae using CLSI breakpoints.
- These data positively support the continued development of solithromycin for the treatment of respiratory infections caused by S. pneumoniae and S. pyogenes.