Activity of Solithromycin and Comparators against Streptococcus pneumoniae isolated from Respiratory Samples Collected from Pediatric, Adult and Elderly Patients in 2012-2013.

Summary of the susceptibility of different age groups to solithromycin and comparators is shown in Table 1 and Summary MIC data for solithromycin and comparators against pneumococci from these patient age groups are shown in Table 2.

**Materials & Methods**

A total of 996 pneumococcal isolates from Europe, Asia-Pacific, North America and other locations worldwide were identified to the species level and MICs determined at a central testing laboratory (IHMA Europe, located in Epalinges, Switzerland). Isolates were from three different age groups: pediatric <12 years old, adult 12 to 64 years old & elderly >64 years old.

Minimum inhibitory concentrations (MICs) were determined by the Clinical and Laboratory Standards Institute (CLSI) recommended broth microdilution testing method using panels prepared at IHMA.

MIC interpretive criteria followed the guidelines of CLSI published in 2014 [3]. Provisional solithromycin breakpoints of ≤1 (susceptible), 2 (intermediate) & ≥4 (resistant) were used in the analysis. Differences in % susceptibility (%S) by age group were evaluated for statistical significance with the Fisher Exact Test.

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 ranges [3].

**Results**

**Figure 1:** Summary of the Susceptibility of Pneumococci isolated from Pediatric Patients to Solithromycin and Comparators

**Table 1:** Summary of the Susceptibility of S. pneumoniae from Different Age Groups to Solithromycin and Comparators

<table>
<thead>
<tr>
<th>Drug</th>
<th>Pediatric (n=161)</th>
<th>Adult (n=509)</th>
<th>Elderly (n=326)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solithromycin</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Ceftriaxone</td>
<td>96.8%</td>
<td>90%</td>
<td>90.8%</td>
</tr>
<tr>
<td>Clindamycin</td>
<td>6.2%</td>
<td>14.4%</td>
<td>14.4%</td>
</tr>
<tr>
<td>Azithromycin</td>
<td>99.4%</td>
<td>99.0%</td>
<td>99.0%</td>
</tr>
<tr>
<td>Levofloxacin</td>
<td>99.4%</td>
<td>99.0%</td>
<td>99.0%</td>
</tr>
<tr>
<td>Ciprofloxacin</td>
<td>90.8%</td>
<td>90.8%</td>
<td>90.8%</td>
</tr>
</tbody>
</table>

**Figure 2:** Summary of the Susceptibility of Pneumococci isolated from Adult Patients to Solithromycin and Comparators

**Figure 3:** Summary of the Susceptibility of Pneumococci isolated from Elderly Patients to Solithromycin and Comparators

**Conclusions**

- Solithromycin showed very good activity against all pneumococci irrespective of patient age group from which the strains were isolated.
- Using provisional solithromycin breakpoints of ≤1 (susceptible), 2 (intermediate) & ≥4 (resistant), 100% of pneumococci were susceptible to solithromycin irrespective of their resistance phenotypes.
- Ceftriaxone susceptibility was significantly lower in S. pneumoniae from pediatric patients than compared with adults or elderly but age group had no effect on the susceptibility to solithromycin.
- The oral agents showed no difference or only slight differences in activity between age groups (none being statistically significant).
- However, resistance to azithromycin, penicillin and most other oral agents was high in all age groups.
- Levofloxacin susceptibility was almost as high as solithromycin, but levofloxacin is associated with several adverse events and is also not approved for use in pediatrics.

**References**


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