In vitro Evaluation of Delafloxacin Activity When Tested against Contemporary ABSSSI Isolates from Europe and Surrounding Areas (2014-2016): Results from the SENTRY Antimicrobial Surveillance Program

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Introduction

Delafloxacin is a broad-spectrum anionic fluoroquinolone (FQ) antibacterial in late-phase clinical development (mid and late-stage clinical development for the treatment of Gram-positive infections) that may offer an advantage over other fluoroquinolones through its novel residual activity and favorable pharmacodynamics.

Materials and Methods

• Bacterial isolates were identified by the submitting laboratories and confirmed by JMI laboratories using standard procedures.

Results

Table 1 Activity of delafloxacin and comparator agents against key organisms groups from Europe in 2014-2016

<table>
<thead>
<tr>
<th>Organism (no. tested)</th>
<th>Delafloxacin</th>
<th>Ciprofloxacin</th>
<th>Moxifloxacin</th>
<th>Levofloxacin</th>
<th>Tetracycline</th>
<th>Daptomycin</th>
<th>Tigecycline</th>
<th>Meropenem</th>
<th>Clindamycin</th>
<th>Linezolid</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. coli (MRSA) 177</td>
<td>0.25</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
</tr>
<tr>
<td>P. aeruginosa 173</td>
<td>0.008</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
</tr>
<tr>
<td>S. aureus 867</td>
<td>0.008</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
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<td>&gt;4</td>
</tr>
<tr>
<td>K. pneumoniae 397</td>
<td>0.008</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
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<tr>
<td>S. pneumoniae 345</td>
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<tr>
<td>S. marcescens 268</td>
<td>0.008</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
<td>&gt;4</td>
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</tr>
</tbody>
</table>

Conclusions

• Delafloxacin demonstrated potent in vitro activity against fluoroquinolone-resistant strains, including those with reduced susceptibility to fluoroquinolones.

Acknowledgements

The study and laboratory work was sponsored by microbiology research grant from Biopharma Therapeutics, Inc.

References


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Revised Abstract

Background: Delafloxacin is a novel spectrum fluoroquinolone (FQ) antibacterial in late-stage clinical development (mid and late-stage clinical development for the treatment of Gram-positive infections) that may offer an advantage over other fluoroquinolones through its novel residual activity and favorable pharmacodynamics.

Methods: A total of 1,120 isolates, 248 non-haemolytic streptococci, 275 β-haemolytic streptococci, viridans group streptococci, 173 S. aureus, 173 E. faecalis, 173 E. coli, 177 MR-CoNS, 867 Enterobacteriaceae, and 275 Pseudomonas aeruginosa were tested. All clinical isolates were tested against delafloxacin using broth microdilution (M100-S27, 2017) and/or molecular characterization. The results were interpreted using Etest (CT201631), pharmacodynamics, and/or molecular characterization. Sensitivity testing was performed according to CLSI standards and/or clinical breakpoints, and were interpreted per Etest (CT201631).

Results: Delafloxacin demonstrated potent in vitro activity against fluoroquinolone-resistant strains, including those with reduced susceptibility to fluoroquinolones.

Conclusion: Delafloxacin demonstrated potent in vitro antibacterial activity against FQ-susceptible and resistant bacteria, both Gram-positive and Gram-negative, isolated from the clinical microbiology laboratories participating in the SENTRY Antimicrobial Surveillance Program (2014-2016) and/or molecular characterization.