**Minocycline Activity Against Unusual Clinically Significant Gram-Negative Pathogens**

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**Introduction**

Unusual non-fermenting Gram-negative (NFGN) pathogens, including Acinetobacter spp., Alcaligenes spp., Burkholderia cepacia, Chryseobacterium spp., and Stenotrophomonas maltophilia, are increasingly problematic due to the high prevalence of antibiotic-resistant strains. These pathogens can cause severe, occasionally fatal infections in immunocompromised patients.

Some strains are inherently resistant to common drug classes, and can acquire other resistance mechanisms, making them difficult to treat.

In this study, we analyzed the susceptibility of unusual NFGN isolates to minocycline.

**Materials and Methods**

From 2016-2018, 1,813 unusual NFGN species were isolated from hospitalized patients in 7,938 isolates in 4 continents. Isolates submitted 1 isolate per patient per infection episode that met local criteria for being the likely causative pathogen.

**Results**

- **The susceptibilities of minocycline and other comparators are shown for the 2 largest groups: non-baumannii-calcoaceticus Acinetobacter spp. (Table 1) and Burkholderia cepacia complex (Table 2).**
- **For Acinetobacter spp., minocycline had the highest susceptibility (≤0.25 mg/L) for 92.7% of isolates, with >90% susceptibility for >90% of isolates.**
- **For Burkholderia cepacia complex, minocycline had the highest susceptibility, ≤0.25 mg/L. The agent with the least susceptibility was amikacin (3%).**

- **Organisms included:**
  - Acinetobacter spp.
  - Alcaligenes spp.
  - Burkholderia cepacia complex
  - Chryseobacterium spp.
  - Stenotrophomonas maltophilia

- **These data suggest that minocycline remains a useful treatment option for infections caused by unusual NFGN.**

**Acknowledgements**

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**References**

- **EUCAST (2020).** "The European Committee on Antimicrobial Susceptibility Testing. 2020. MIC Tables.”

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**Table 1. MIC distribution of minocycline tested against various unusual non-fermentative Gram-negative species with at least 10 isolates**

<table>
<thead>
<tr>
<th>Organism</th>
<th>No. (%) of isolates</th>
<th>≤0.06</th>
<th>0.06-0.12</th>
<th>0.12-0.25</th>
<th>0.25-0.5</th>
<th>0.5-1.0</th>
<th>1.0-2.0</th>
<th>2.0-4.0</th>
<th>4.0-8.0</th>
<th>8.0-16.0</th>
<th>&gt;16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acinetobacter baumannii</td>
<td>100 (91)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>Acinetobacter calcoaceticus</td>
<td>100 (97)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>

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**Table 2. Activity of minocycline and comparator antimicrobial agents tested against 424 Acinetobacter isolates (excluding Acinetobacter baumannii-calcoaceticus species complex)**

<table>
<thead>
<tr>
<th>Antimicrobial agent</th>
<th>No. (%) of isolates</th>
<th>≤0.06</th>
<th>0.06-0.12</th>
<th>0.12-0.25</th>
<th>0.25-0.5</th>
<th>0.5-1.0</th>
<th>1.0-2.0</th>
<th>2.0-4.0</th>
<th>4.0-8.0</th>
<th>8.0-16.0</th>
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<tr>
<td>Minocycline</td>
<td>100 (91)</td>
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<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
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**Table 3. Activity of minocycline and comparator antimicrobial agents tested against 411 Acinetobacter spp. isolates**

<table>
<thead>
<tr>
<th>Antimicrobial agent</th>
<th>No. (%) of isolates</th>
<th>≤0.06</th>
<th>0.06-0.12</th>
<th>0.12-0.25</th>
<th>0.25-0.5</th>
<th>0.5-1.0</th>
<th>1.0-2.0</th>
<th>2.0-4.0</th>
<th>4.0-8.0</th>
<th>8.0-16.0</th>
<th>&gt;16</th>
</tr>
</thead>
<tbody>
<tr>
<td>Minocycline</td>
<td>100 (91)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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