Potency and Spectrum of Tigecycline Tested Against Bacterial Pathogens Producing Skin and Skin Structure Infections in European Medical Centers, Including Community-Acquired Methicillin-Resistant S. aureus

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ABSTRACT

Objective: To evaluate the activity and potency of tigecycline when tested against a large collection of bacterial pathogens causing skin and skin structure infections in Europe, the agent representative of the glycopeptide class and was recently approved by the European Medicines Agency for the treatment of complicated SSSI and intra-abdominal infections.

Methods: Coronal, non-disinfective bacterial isolates (4,567 strains) were collected from 2000 to 2007 from patients with documented SSSI in >30 medical centers (14 countries) participating in the Tigecycline Surveillance Program in Europe. All isolates were tested using CLSI broth microdilution methods against tigecycline and key comparator agents commonly used for the treatment of SSSI. Tigecycline-susceptible (S) breakpoints (USA-FDA/EUCAST) were defined as ≤0.25 mg/L for Enterobacteriaceae (ENT) and ≤0.5 mg/L for streptococci and enterococci. S. aureus infections diagnosed in the first 48 hours of hospitalization were considered to be of community origin.

Results: Consecutive, non-duplicate bacterial isolates (4,567 strains) were the most active compounds tested against Gram-positive pathogens producing serious SSSI. Tigecycline-susceptible (S) and CoNS (97.9% S). Linezolid was also active against Gram-positive, non-susceptible to vancomycin (78.8%), erythromycin (61.3%) and clindamycin (56.5%; Table 5).

TABLE 1. Antimicrobial activity of tigecycline and selected comparator agents tested against bacterial isolates causing SSSI in European medical centers.

<table>
<thead>
<tr>
<th>Organism (no. tested)</th>
<th>Tigecycline</th>
<th>Ceftriaxone</th>
<th>Levofloxacin</th>
<th>Gentamicin</th>
<th>Vancomycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>In vitro susceptibility</td>
<td>(MIC, mg/L)</td>
<td>(MIC, mg/L)</td>
<td>(MIC, mg/L)</td>
<td>(MIC, mg/L)</td>
<td>(MIC, mg/L)</td>
</tr>
<tr>
<td>E. coli</td>
<td>0.12-4</td>
<td>≤2</td>
<td>≤0.25</td>
<td>≤0.015</td>
<td>1-2</td>
</tr>
<tr>
<td>S. aureus</td>
<td>≤0.12-2</td>
<td>≤0.5</td>
<td>≤0.25</td>
<td>≤0.016</td>
<td>2-16</td>
</tr>
<tr>
<td>P. aeruginosa</td>
<td>&gt;8-64</td>
<td>&gt;8-64</td>
<td>&gt;4-32</td>
<td>&gt;4-4</td>
<td>&gt;24</td>
</tr>
<tr>
<td>S. pneumoniae</td>
<td>&gt;8-64</td>
<td>≤8</td>
<td>&gt;2-4</td>
<td>&gt;2-4</td>
<td>&gt;24</td>
</tr>
</tbody>
</table>

CONCLUSIONS

Tigecycline was highly active against the eight most common pathogens producing SSSI in the European medical centers surveyed (except for P. aeruginosa), and showed the broadest spectrum of activity among the antimicrobials tested.

Tigecycline, linezolid and vancomycin were the most active compounds tested against Gram-positive species, while tigecycline, linezolid and imipenem were the most active against Gram-negative organisms.

Tigecycline represents a welcome alternative for use in treating common Gram-positive and -negative pathogens producing serious SSSI in Europe.