Daptomycin activity was not adversely influenced by resistance to oxacillin (Figure 2).

Figure 2. Daptomycin MIC distributions among methillin-susceptible and -resistant S. aureus collected in 20 USA medical centers (2005-2006).

Table 1. Antimicrobial activity of daptomycin and comparator agents tested against S. aureus strains from 20 USA hospitals (2005-2006).

<table>
<thead>
<tr>
<th>Organism/Antimicrobial agent (no. tested)</th>
<th>% Susceptible</th>
<th>MIC50 (μg/ml)</th>
<th>MIC90 (μg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. aureus (2,731)</td>
<td>2.7</td>
<td>0.12-8</td>
<td>0.25-16</td>
</tr>
<tr>
<td>MRSA (562)</td>
<td>67.5</td>
<td>0.5-64</td>
<td>2-4</td>
</tr>
<tr>
<td>MSSA (2,169)</td>
<td>95.7</td>
<td>0.12-4</td>
<td>0.5-16</td>
</tr>
<tr>
<td>Staphylococcus epidermidis (2,000)</td>
<td>0.8</td>
<td>0.12-8</td>
<td>0.25-16</td>
</tr>
<tr>
<td>Staphylococcus saprophyticus (1,000)</td>
<td>0.5</td>
<td>0.12-8</td>
<td>0.5-16</td>
</tr>
<tr>
<td>Staphylococcus lugdunensis (500)</td>
<td>0.2</td>
<td>0.12-2</td>
<td>0.5-16</td>
</tr>
</tbody>
</table>

<REFERENCES>

<INTRODUCTION>

Staphylococcus aureus, an important cause of infection in hospitalized patients, principally causes bacteremia, pneumonia and skin infections. In addition, infections caused by methicillin-resistant Staphylococcus aureus (MRSA) strains are associated with longer hospital stay, more days of antimicrobial therapy and higher healthcare-associated costs than infections caused by methicillin-susceptible S. aureus (MSSA) strains. Vancomycin remains the standard for treating most MRSA infections; however, concerns over increases in the rates of heteroresistance and tolerance to this agent, combined with its compromised safety and clinical shortcomings have motivated the increasing use of newer agents.

<RESULTS>

Daptomycin is a novel lipopeptide with potent in vitro activity against Gram-positive cocci. Daptomycin was approved by the United States (USA) Food and Drug Administration (FDA) in 2003 for the treatment of complicated skin and skin structure infections (cSSSI) caused by MSSA and MRSA, groups A and B (β-haemolytic streptococci), and for vancomycin-susceptible Enterococcus faecalis. In addition, this compound was later approved for the treatment of S. aureus bacteremia, including right-sided endocarditis.

In the present study, we evaluated daptomycin potency trends in the 4-year period (2005-2008) following USA-FDA release for clinical use.

<CONCLUSIONS>

Daptomycin was highly active against S. aureus and its activity remained stable across the 4-year period evaluated (2005-2008) using reference CLSI methods.

Decreases in daptomycin potency (“MIC creep”) were not observed since USA-FDA approval and widespread clinical use of these agents.

Resistance to oxacillin increased during the same period, but did not adversely influence daptomycin activity.

Resistance to daptomycin (three strains among 11,243 isolates; all at 2 μg/ml) levofloxacin and vancomycin remains very uncommon among S. aureus isolated in USA hospitals.

<REFERENCES>

2. Clinical and Laboratory Standards Institute (2008). M100-S18, Performance standards for antimicrobial susceptibility testing; Twenty-West Nineteenth Informational supplement. Ws. CLSI, Wayne, PA.