Tigecycline was very active against a large collection of MRSA strains from USA hospitals. Tigecycline has emerged as a valuable treatment option for MRSA infections.

**RESULTS**

- **MRSA rates increased continuously from 49.6% in 2004 to 57.3% in 2008 (54.1% overall).** USA isolates remained potent (97.8% susceptible) against current MRSA. The isolates were recovered from patients exhibiting bacteremia, pneumonia and SSSI. MRSA are commonly recovered from hospital-acquired infections. A leading cause of MRSA infections.

- **Susceptibility categories:** MRSA was defined, for the purposes of this study, as those strains with a tigecycline MIC value of 0.5 µg/ml.

**ACKNOWLEDGMENT**

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**SELECTED REFERENCES**


**MATERIALS AND METHODS**

**INTRODUCTION**

Tigecycline is a glycylcycline antibiotic that exhibits a wide range of activity against Gram-positive and -negative organisms, including multidrug-resistant (MDR) S. aureus strains. Tigecycline binds to the 30S ribosomal subunit which results in protein inhibition. Tigecycline has been approved by the USA-FDA for the treatment of intra-abdominal infections and community-acquired pneumonia, and has demonstrated non-inferiority against MRSA infections. We report the TIG activity versus MRSA collected from USA hospitals in a 5-year period (2004-2008).

**METHODS**

A total of 18,917 unique S. aureus strains were collected from patients exhibiting bacteremia, pneumonia and SSSI. Tigecycline, clindamycin, levofloxacin, linezolid, oxacillin, teicoplanin, tigecycline/oxacillin, and vancomycin were obtained from the respective manufacturer or from Sigma-Aldrich (ST. Louis, Missouri, USA).

**RESULTS**

- MRSA rates increased continuously from 49.6% in 2004 to 57.3% in 2008 (54.1% overall). USA isolates remained potent (97.8% susceptible) against current MRSA. The isolates were recovered from patients exhibiting bacteremia (33.4%), SSSI (13.4%) and pneumonia (10.7%).

- Tigecycline showed potent activity safety against MRSA during the study period with percent susceptibility ranging from >98.0% to 100.0% (Table 1).

- Only three strains (0.3%) were non-susceptible to tigecycline, one each from 2005 and 2008. These three strains exhibited tigecycline MIC values of 1 µg/ml (two isolates) or 2 µg/ml (one isolate), which were below the USA-FDA breakpoint of 0.5 µg/ml (Table 2).

Tigecycline potency and spectrum against a large collection of MRSA strains from 32 USA hospitals.

**SUSTAINED ACTIVITY OF TIGECYCLINE AGAINST METHICILLIN-RESISTANT S. aureus FROM UNITED STATES MEDICAL CENTERS (2004-2008)**

**TABLE 2. Activity of Tigecycline and various comparator agents against S. aureus, stratified by year.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Tigecycline (MIC90 ≤0.5 µg/ml)</th>
<th>Vancomycin (MIC90 ≤1 µg/ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>100.0 (95.9)</td>
<td>99.9 (100.0)</td>
</tr>
<tr>
<td>2005</td>
<td>100.0 (100.0)</td>
<td>100.0 (100.0)</td>
</tr>
<tr>
<td>2006</td>
<td>100.0 (100.0)</td>
<td>100.0 (100.0)</td>
</tr>
</tbody>
</table>

**TABLE 1. Five-year (2004-2008) MIC distributions for tigecycline tested against 10,342 MRSA strains, stratified by year.**

<table>
<thead>
<tr>
<th>Year</th>
<th>Tigecycline (MIC50/90)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>0.12/0.25 µg/ml</td>
</tr>
<tr>
<td>2005</td>
<td>0.12/0.25 µg/ml</td>
</tr>
<tr>
<td>2006</td>
<td>0.12/0.25 µg/ml</td>
</tr>
<tr>
<td>2007</td>
<td>0.12/0.25 µg/ml</td>
</tr>
<tr>
<td>2008</td>
<td>0.12/0.25 µg/ml</td>
</tr>
</tbody>
</table>

**Figure 1. Annual prevalence of MRSA, 2004-2008, all sites in US.**

**CONCLUSIONS**

- Tigecycline was very active against a large contemporary collection of MRSA (10,342) isolated from USA hospitals.

- Potency and spectrum of tigecycline against MRSA has not changed since its approval by the USA-FDA and its anti-MRSA spectrum was similar to those of vancomycin and linezolid.

- Tigecycline has emerged as a valuable treatment option for MRSA infections.