Oritavancin Activity against Staphylococcus aureus Isolates Causing Bone and Joint Infection in European Hospitals (2010–2019)

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Abstract

This study was supported by Menarini. Menarini had no involvement in the collection, analysis, and interpretation of data.

Keywords: oritavancin, Staphylococcus aureus, bone and joint infection, European medical centers

Introduction

- Bone and joint infections (BJI) frequently are caused by Staphylococcus aureus.
- MSSA, MRSA, proposed in 1971 by Hackenbroch and colleagues.

Materials and Methods

MSSA

Antimicrobial susceptibility testing

- Oritavancin belongs to the lipoglycopeptide class of antimicrobial agents that act by inhibiting cell wall synthesis via three mechanisms of action which include membrane permeability, and two sequential steps involving cell wall synthesis.
- It was approved in the United States (2015) and Europe (2019) to treat adults with severe bacterial skin and skin structure infections (SSTIs) caused by MSSA, MRSA, streptococci, streptococci, staphylococci, staphylococci, staphylococci, staphylococci.
- Oritavancin has activity against Staphylococcus spp., including MSSA, Staphylococcus aureus, Staphylococcus epidermidis, Staphylococcus lugdunensis, Staphylococcus pneumoniae, and by other pathogens (Europe/Mediterranean region) (EU/ME): 94 isolates).
- The ABSSSI indication was approved as a single-dose treatment for ABSSSI caused by S. aureus, including MSSA, Staphylococcus aureus, Staphylococcus epidermidis, Staphylococcus lugdunensis, Staphylococcus pneumoniae, and vancomycin-susceptible Enterococcus faecalis.

Results

- Oritavancin was observed in 20.5% of S. aureus (Table 1) and this phenotype was more frequent in EU/EU (16.7%) than W-EU (4.3%).
- Oritavancin MIC90 values were within sterilizing range (5–10%)
- Oritavancin yearly MIC50 and MIC90 variations were within sterilizing range (5–10%)

Table 1 Activity of oritavancin and comparators against S. aureus isolates causing BJI in European region (2010–2019)

<table>
<thead>
<tr>
<th>Antimicrobial</th>
<th>Oritavancin</th>
<th>Clindamycin</th>
<th>Teicoplanin</th>
<th>Tetracycline</th>
<th>TMP-SMX</th>
<th>Vancomycin</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIC range (mg/L)</td>
<td>0.03–0.06</td>
<td>0.5–4.0</td>
<td>0.03–1.0</td>
<td>0.03–1.0</td>
<td>0.03–8.0</td>
<td>0.03–1.0</td>
</tr>
<tr>
<td>% susceptible</td>
<td>100.0</td>
<td>78.6</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

MSSA susceptibilitya (n and % within EU (n=8; 16.7)

- Western European and Eastern European regions.
- Clindamycin (>99.0% susceptible [CLSI and EUCAST]) and levofloxacin (>95.0% susceptible [CLSI]) were active against MSSA, but less active against MRSA (67.8% [CLSI] and EUCAST) and MSSA, but less active against MRSA (66.7% [CLSI] and EUCAST), respectively

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References