**Oritavancin In Vitro Activity Against a Collection of Gram-Positive Clinical Isolates Causing Bone and Joint Infections, Including Osteomyelitis, in United States and European Hospitals (2012–2016)**

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**Amended Abstract**

**Background:** Bone and joint infections (BJIs) are usually treated with a combination of parenteral drugs due to the risk of treatment failure after administration of oral drugs. Oritavancin has demonstrated activity against a variety of Gram-positive pathogens, including MRSA, methicillin-resistant Staphylococcus epidermidis, and vancomycin-resistant enterococci (VRE). This study assessed oritavancin’s use in a real-world setting for treatment of BJIs and other Gram-positive infections across hospitals in the US and Europe.

**Methods:** This study included BJI pathogens recovered from joint fluid or bone samples from 264 medical sites in the US (163 medical sites) and Europe (101 medical sites). Isolates were collected from 29 medical sites in the US and 15 medical sites in Europe, and were identified as *Staphylococcus aureus* (S. aureus) (263 isolates), *Staphylococcus epidermidis* (CoNS) (132 isolates), *Enterococcus faecalis* (E. faecalis) (134 isolates), *Enterococcus faecium* (E. faecium) (59 isolates), *Streptococcus pneumoniae* (182 isolates), *Streptococcus intermedius* (16 isolates), *Streptococcus mitis* (2 isolates), *Streptococcus galilaei* (7 isolates), *Streptococcus gordonii* (1 isolate), and *Streptococcus dysgalactiae* (1 isolate).

**Results:** Oritavancin was tested alone or in combination with other drugs against the 495 isolates. Of the 263 S. aureus isolates, oritavancin displayed MIC ≤0.12 g/mL against 94.5% of the isolates, ≤0.03 g/mL against 99.9%, ≤0.25 g/mL against 99.9%, ≤0.5 g/mL against 99.9%, and ≤1 g/mL against 99.9% of the isolates. Over 90% of coagulase-negative staphylococci (CoNS) and enterococci displayed MIC ≤0.06 g/mL against oritavancin.

**Conclusions:** Oritavancin demonstrated potent activity against Gram-positive pathogens isolated from BJIs. Oritavancin is a promising antimicrobial for the treatment of infections caused by Gram-positive pathogens.

**Amended Materials and Methods**

**Bacterial isolates**

- S. aureus isolates were collected from 29 medical sites in the US (163 medical sites) and Europe (101 medical sites).
- CoNS isolates were collected from 15 medical sites in Europe.
- *Enterococcus* isolates were collected from 13 medical sites in Europe.
- Isolates were identified and confirmed by a standard protocol and submitted to a central laboratory confirming the identity of Gram-positive bacteria.
- Coagulase-negative staphylococci (CoNS) were isolated from 132 isolates, *Streptococcus pneumoniae* from 182 isolates, *Streptococcus intermedius* from 16 isolates, and *Streptococcus mitis* from 2 isolates.

**Antimicrobial susceptibility testing**

- Antimicrobial susceptibility testing was performed by broth microdilution, utilizing the Clinical and Laboratory Standards Institute (CLSI) M100-A17 guidelines. MIC was determined for all isolates.
- Susceptibility results were interpreted as susceptible (MIC ≤ MIC susceptible breakpoint), intermediate (MIC ≥ MIC susceptible breakpoint), or resistant (MIC > MIC resistant breakpoint).
- Isolates were tested against oritavancin alone or in combination with other drugs.

**Table 1. Antimicrobial activity of oritavancin tested against the main organisms and organ groups of isolates included in this study**

<table>
<thead>
<tr>
<th>Organ group (organism)</th>
<th>Number of isolates of BC (gram +, % susceptible)</th>
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<tbody>
<tr>
<td>S. aureus (S. simulans)</td>
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<tr>
<td>CoNS (132)</td>
<td>132 isolates</td>
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<tr>
<td>Strep. spec. (182)</td>
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<tr>
<td>Enterococci (59)</td>
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**Table 2. Antimicrobial activity of oritavancin and comparator agents against contemporary gram-positive isolates causing BJs in the US and Europe**

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**References**

- Mendes RE, Sader HS, Flamm RK et al. (2014).

**Conclusion**

- Oritavancin is a promising candidate for treatment of Gram-positive bacterial infections, particularly those caused by Gram-positive cocci.

**Acknowledgments**

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