**Potency of Dalbavancin Tested Against 37,258 Gram-positive Cutaneous Pathogens from USA Medical Centers (2006-2009)**

**ABSTRACT**

Dalbavancin (BI 397), a glycopeptide with potent Gram-positive activity, was evaluated for activity against 37,258 Gram-positive pathogens from USA medical centers over the years 2006 to 2009. The study included isolates from bacteremias with other common sites of infection being skin and skin structure, and the lower respiratory tract (pneumonia). The isolates were tested, using validated reference methods of the Clinical and Laboratory Standards Institute (CLSI). Results from other regions were tested, using validated reference methods of the Clinical and Laboratory Standards Institute (CLSI). The MIC results were generated by the reference Etest method (AB BIODISK) and reference dilution methods using Gram-positive organisms.

**INTRODUCTION**

Dalbavancin (also known as BMY 7288 or IM362, AAV, VERD1) is an investigational glycopeptide with potent Gram-positive activity, allowing once weekly dosing with initial reports of high clinical success and in vitro activity against a broad spectrum of Gram-positive pathogens. Dalbavancin was derived from a natural pyrrole-2-carboxylic acid (4-6) produced by a 3-ethyl-thio-pyrrole-amide fermentation. This modifications of existing structures of Gram-positive-active antimicrobial peptides have been necessary to achieve these desired properties, as well as fostering the development of novel structures such as the oxazolidinones, streptogramins, ketolides, mafenide acetate and clindamycin.

In vitro international resistance surveillance programs for dalbavancin were initiated as early as 2002. The 2006-2009 results for the United States were generated using the validated reference methods of the Clinical and Laboratory Standards Institute (CLSI). The MICs were determined by Etest (AB BIODISK) and reference dilution methods using Gram-positive organisms. The distribution of organisms was: S. aureus (22,425 isolates), 85.1% of which were methicillin-susceptible (MS), 14.9% were methicillin-resistant (MR), 5.5% were clindamycin-resistant (C), 3.2% were clindamycin-intermediate (CI), 1.1% were penicillin-susceptible (P), and 0.2% were penicillin-resistant (PR). The proportion of vancomycin-susceptible (V) was 42.2% and the proportion of vancomycin-resistant (VR) was 57.8%.

**RESULTS**

Table 1 illustrates the potent dalbavancin activity against S. aureus (MIC90, 0.06 µg/ml) and CoNS (MIC90, 0.06 µg/ml) in the USA over the period 2006-2009. Dalbavancin was four-fold more active than daptomycin, 16-fold more potent than linezolid, and was 18-fold more active than clindamycin. Organisms from 75 hospitals (all comparable to SA (MIC90, 0.12 µg/ml), and was even more potent against CoNS (MIC90 >0.5 µg/ml). Among ENT, activity of CoNS (4,637) was comparable to the CLSI M07-A8 method. The accuracy was very high (sustained activity.

Among staphylococci, dalbavancin MIC values above 0.25 µg/ml were rare (<0.1% for S. aureus and 0.3% for CoNS). No dalbavancin MIC values above 1.0 µg/ml were observed for streptococci. Among streptococci, dalbavancin MIC values were comparable to CLSI Breakpoints Tables 1 and 2 from this USA medical centers.

Among enterococci, reduced susceptibility to dalbavancin was encountered among E. faecalis isolates, where vancomycin resistance, dalbavancin susceptibility, and vancomycin susceptibility were strongly associated among E. faecalis (Table 1). The MIC90 of dalbavancin was 0.5 µg/ml.

**DISCUSSION**

Dalbavancin, a once-weekly vancomycin-like glycopeptide, has been shown to be highly active against Gram-positive organisms. The results of this study confirm the high potency of dalbavancin against a broad range of Gram-positive pathogens, including methicillin-resistant S. aureus and vancomycin-resistant enterococci. The low frequency of reduced susceptibility to dalbavancin among E. faecalis isolates suggests that dalbavancin could be a useful alternative to vancomycin in the treatment of infections caused by these organisms.

**REFERENCES**