Antimicrobial Activity of Dalbavancin Tested against Gram-Positive Organisms Isolated from Patients with Infective Endocarditis in United States and European Medical Centers

Helio S. Sader, Rodrigo E. Mendes, Michael A. Pfaller, Robert K. Flamm
JMI Laboratories, North Liberty, Iowa, USA

INTRODUCTION

Despite improvements in its management, infective endocarditis (IE) remains associated with high morbidity and severe complications. Managing IE requires an aggressive and prolonged treatment approach with specific antimicrobial agents that act by interrupting bacterial cell wall synthesis resulting in bacterial death, and was approved in the United States (2014) and Europe (2015) to treat adults with acute bacterial skin and skin structure infections (ABSSIs) caused by susceptible isolates of Staphylococcus aureus, including methicillin-resistant (MRSA) and susceptible S. aureus, Staphylococcus lugdunensis, Staphylococcus epidermidis, Streptococcus anginosus group, and vancomycin-resistant Enterococcus faecalis.

Dalbavancin allows for more convenient patient-admistration, which can be a single dose of 1000 mg or a dose of 500 mg followed by 300 mg a week later for treating-ABSSIS.

Dalbavancin is not licensed for treating IE, but is potentially important in treating infections due to highly resistant gram-positive cocci (GPG).

We evaluated dalbavancin in vitro activity and potency when tested against a large collection of GPG isolates responsible for IE.

MATERIALS AND METHODS

Bacterial isolates

A total of 625 organisms recovered from patients with a diagnosis of bacterial endocarditis in the United States (n = 222) and Europe (n = 403) by the SENTRY Antimicrobial Surveillance Program (2007–2017) were included in this investigation.

Antimicrobial susceptibility testing

Isolates were tested for susceptibility by broth microdilution following guidelines in the CLSI M07 Ed11E. Methods for dilution antimicrobial susceptibility testing: 28th informational supplement. (VGS: S. aureus ATCC 29213, E. faecalis 29212, and Streptococcus pneumoniae ATCC 49619).

Antimicrobial activity of dalbavancin.

MSSA, (no. of isolates) 50/90, 0.25/0.5 mg/L; VGS, 0.5/1 mg/L; VGS, 1/2 mg/L; CoNS, 0.06/0.25 mg/L; E. faecalis, 0.5/1 mg/L, dalbavancin MIC values (MIC ≤0.25 mg/L) showed complete activity (100.0%) against S. aureus, but dalbavancin MIC values were 4- to 8-fold lower than those of vancomycin when tested against S. aureus. Of those, dalbavancin MIC values were 4- to 8-fold lower than those of vancomycin when tested against S. aureus.

All GPG were inhibited at ≤1 mg/L of dalbavancin and 62.9% were inhibited at ≤0.25 mg/L of dalbavancin (Table 2), and the highest dalbavancin MICs were 0.5 mg/L for VGS and 4 mg/L for CoNS (93.5% inhibited at ≤1 mg/L, data not shown).


All GPG isolates tested were susceptible to dalbavancin. Dalbavancin MIC values (MIC ≤0.25 mg/L) showed complete activity (100.0%) against S. aureus, but dalbavancin MIC values were 4- to 8-fold lower than those of vancomycin when tested against S. aureus. Of those, dalbavancin MIC values were 4- to 8-fold lower than those of vancomycin when tested against S. aureus.

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Table 1. Dalbavancin MIC distribution when tested against 625 gram-positive organisms causing infective endocarditis (SENTRY Program, 2007-2017).

Table 2. Antimicrobial activity of dalbavancin and comparator agents tested against gram-positive bacilli isolated from patients with infective endocarditis (SENTRY Program, 2007-2017).

REFERENCES


2. Allergan had no involvement in the collection, analysis, or interpretation of data.

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