

## PUBLISHED ABSTRACT

# Effectiveness of Beta-Lactams Versus Vancomycin for Treatment of Methicillin-Susceptible *Staphylococcus aureus* Bacteremia: A Systematic Review and Meta-Analysis

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### Background

Methicillin-susceptible *Staphylococcus aureus* (MSSA) bacteremia is a common and life-threatening disease. However, it remains unclear whether beta-lactams are superior to vancomycin. The aim of this study was to compare the effectiveness of beta-lactams and vancomycin.

### Methods

We conducted a systematic review and a meta-analysis to evaluate the effectiveness of these two regimens for the treatment of MSSA bacteremia. A systematic literature search was performed using PubMed, EMBASE and the Cochrane Library from the inception dates to December 2018. Studies that compared beta-lactams and vancomycin in patients with MSSA bacteremia were included. The primary outcome was mortality.

### Results

Nine observational studies with a total of 7,091 patients met the inclusion criteria. 768 out of 5530 patients (13.9%) died in beta-lactam group and 199 of 1561 (12.7%) patients died in vancomycin group. A meta-analysis showed that mortality was decreased in beta-lactam group compared to vancomycin group (OR, 0.53; 95% CI, 0.31 to 0.91; I<sup>2</sup> = 68%). A subgroup analysis showed statistically significant reduction in mortality with cefazolin or nafcillin (OR, 0.26; 95% CI, 0.08 to 0.81; I<sup>2</sup> = 16%), whereas no significant difference was found between other beta-lactams and vancomycin (OR, 0.63; 95% CI, 0.37 to 1.08; I<sup>2</sup> = 64%).

### Conclusions

The results of this meta-analysis further support current evidence that vancomycin is less effective than cefazolin and nafcillin and should be avoided as a definitive therapy for MSSA bacteremia. Other beta-lactams may be comparable to vancomycin.

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