EVALUATION OF VANCOMYCIN POTENCY TRENDS ("CREP") AGAINST METHICILLIN-RESISTANT S. AUREUS COLLECTED IN 9 UNITED STATES HOSPITALS OVER FIVE YEARS (2002-2006)


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**ABSTRACT**

Background: Vancomycin (VCM) susceptibility has been reported to fluctuate over time and to vary among institutions. This study examined vancomycin susceptibility trends using standardized MIC testing ("CREEP") to evaluate vancomycin MICs in clinical isolates of methicillin-resistant Staphylococcus aureus (MRSA) over five years (2002-2006) in a large multicenter surveillance study.

Methods: A total of 1,761 clinical MRSA isolates (2002-2006) exhibiting a vancomycin MIC of ≤2 μg/ml were selected for analysis. After stratification into clonal groups by PFGE, vancomycin MICs were determined using the broth microdilution method. Median and mode MICs were calculated for each year. The sensitivity of strains was compared to the wild-type population using the Etest and the broth dilution method.

Results: The median MIC for all MRSA isolates was 1.0 μg/ml, and the vancomycin MIC ranged from 0.563 to 0.688 μg/ml in 2002 to 2006 (p < 0.05). The vancomycin MIC mode was 0.625 μg/ml (93.2% of isolates had MIC values ≤0.625 μg/ml). The proportion of isolates with vancomycin MICs of 0.5 μg/ml was significantly lower in 2005 compared to 2002 (p < 0.05). The proportion of isolates with vancomycin MICs of 1.0 μg/ml increased from 2002 to 2006 (p < 0.05). The vancomycin MIC mode was 0.625 μg/ml in 2002 to 1.02 μg/ml in 2006.

Conclusions: Longitudinal surveillance of vancomycin MICs in MRSA isolates has been shown to be useful for monitoring vancomycin susceptibility trends. The sensitivity of MRSA isolates was compared to that of the wild-type population. This study suggests that long-term surveillance of vancomycin MICs in MRSA isolates can be useful for monitoring vancomycin susceptibility trends.

**METHODS**

**Bacterial strains**

Vancomycin-resistant clinical isolates of S. aureus (2002-2006) exhibiting a vancomycin MIC of ≤2 μg/ml were selected for analysis. After stratification into clonal groups by PFGE, vancomycin MICs were determined using the broth microdilution method. The sensitivity of strains was compared to the wild-type population using the Etest and the broth dilution method.

**RESULTS**

The median MIC for all MRSA isolates was 1.0 μg/ml, and the vancomycin MIC ranged from 0.563 to 0.688 μg/ml in 2002 to 2006 (p < 0.05). The vancomycin MIC mode was 0.625 μg/ml (93.2% of isolates had MIC values ≤0.625 μg/ml). The proportion of isolates with vancomycin MICs of 0.5 μg/ml was significantly lower in 2005 compared to 2002 (p < 0.05). The proportion of isolates with vancomycin MICs of 1.0 μg/ml increased from 2002 to 2006 (p < 0.05). The vancomycin MIC mode was 0.625 μg/ml in 2002 to 1.02 μg/ml in 2006.

**Conclusions**

Longitudinal surveillance of vancomycin MICs in MRSA isolates has been shown to be useful for monitoring vancomycin susceptibility trends. The sensitivity of MRSA isolates was compared to that of the wild-type population. This study suggests that long-term surveillance of vancomycin MICs in MRSA isolates can be useful for monitoring vancomycin susceptibility trends.