Impact of molecular epidemiology and reduced susceptibility to glycopeptides and daptomycin on outcomes of patients with methicillin-resistant Staphylococcus aureus bacteremia.


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ABSTRACT

Background
Methicillin-resistant Staphylococcus aureus (MRSA) bacteremia was associated with high mortality, but the risk factors associated with mortality remain controversial.

Methods
A retrospective cohort study was designed. All patients with MRSA bacteremia admitted were screened and collected for their clinical presentations and laboratory characteristics. Minimum inhibitory concentration (MIC) and staphylococcal cassette chromosome mec (SCCmec) type of bacterial isolates were determined. Risk factors for mortality were analyzed.

Results
Most MRSA isolates from the 189 enrolled patients showed reduced susceptibility to antibiotics, including MIC of vancomycin \( \leq 1.5 \) mg/L (79.9%), teicoplanin \( \leq 2 \) mg/L (86.2%), daptomycin \( \leq 0.38 \) mg/L (73.0%) and linezolid \( \leq 1.5 \) mg/L (64.0%). MRSA with vancomycin MIC \( \leq 1.5 \) mg/L and inappropriate initial therapy were the two most important risk factors for mortality (both \( P < 0.05 \); odds ratio = 7.88 and 6.78). Hospital-associated MRSA (HAMRSA), carrying SCCmec type I, II, or III, was associated with reduced susceptibility to vancomycin, teicoplanin or daptomycin and also with higher attributable mortality (all \( P < 0.05 \)).

Keywords: Methicillin-resistant Staphylococcus aureus, Minimum inhibitory concentration, Molecular Epidemiology...

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