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Molecular typing of methicillin-resistant *Staphylococcus aureus* isolated from bloodstream infections in a university hospital

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**Abstract:** Aim: Bloodstream infections due to methicillin-resistant *Staphylococcus aureus* (MRSA) strains are one of the major problems in many hospitals. Molecular typing provides very useful information about the origin and the spreading ways of strains. The aim of the present study is to assess the clonal relationship amongst MRSA strains isolated from bloodstream infections of patients in Turgut Özal Medical Center, İnönü University in Turkey. Materials and methods: A total of 37 consecutive MRSA strains were identified from the blood cultures from January to December 2003. Methicillin resistance was confirmed with amplification of the *mecA* gene by polymerase chain reaction (PCR). Clonal relatedness of the strains was investigated by arbitrarily primed polymerase chain reaction (AP-PCR) and pulsed-field gel electrophoresis (PFGE). Results: Of the 37 *mecA* positive *S. aureus* strains identified in a 1-year period, 29 (78.3%) were from intensive care units (ICUs) and the remaining 6 from other wards. The MRSA strains were resistant to most clinically useful anti-staphylococcal agents. AP-PCR and PFGE typing methods indicated that 67.6% and 60.7% of the typed strains were clonally related, respectively. Clonally related strains were not restricted in a specific clinic and period. Conclusion: Our findings indicated that MRSA bloodstream infections in our hospital were not originated from any predominant clone and AP-PCR typing can be used to screen clonal relatedness of these strains. The present data showed that there was no predominant MRSA clone in our hospital. However, because of the high rates of MRSA and clonally related strains, the infection control practices were reconsidered and more strict rules were proposed to the infection control committee to eliminate the spread of these strains between wards in our hospital.

**Key words:** Methicillin-resistant *Staphylococcus aureus*, bloodstream infections, AP-PCR, PFGE

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