

Publication

Emergence of SCCmec type IV as the most common type of methicillin-resistant staphylococcus aureus in a University Hospital

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BACKGROUND: The epidemiology of methicillin-resistant *Staphylococcus aureus* (MRSA) has dramatically changed over the last decade by the emergence of community-associated MRSA (CA-MRSA). Recent studies indicate that these strains have already spread to hospitals. To evaluate if SCCmec type IV and Panton-Valentine leukocidin (PVL) are unambiguous markers of CA-MRSA, we analyzed 77 sporadic MRSA strains isolated, in our low MRSA incidence university hospital, from inpatients between 2000 and 2004. METHODS: MRSA strains were analyzed by staphylococcal cassette chromosome mmecec (SCCmec) typing, PCR for PVL genes and pulsed-field gel electrophoresis (PFGE). MRSA was classified in HA-MRSA or CA-MRSA according to Centers for Disease Control and Prevention (CDC) criteria. Antimicrobial susceptibility testing was performed using microbroth dilution method following CLSI recommendations. RESULTS: Among 77 sporadic single-patient strains, SCCmec types I-IV and four subtypes were identified. Type IV/IVA was most common (42.9%). The distribution of SCCmec types changed over the years. Type IV/IVA strains increased from 33.3% in 2000 to 57.9% in 2004. Type IV strains were resistant to ciprofloxacin in 81.8%, and in 9.1% to tobramycin while type IVA strains were 100% resistant to both antimicrobials. In contrast, non-type IV/IVA strains were resistant to ciprofloxacin in 86.4%, and in 75.0% to tobramycin. Only one strain was PVL positive and harbored SCCmec type III variant. By PFGE analysis, the 33 SCCmec type IV/IVA strains comprised 12 distinct genotypes. 36.4% of 11 CA-MRSA and 43.9% of 66 HA-MRSA harbored SCCmec type IV/IVA. CONCLUSION: Type IV/IVA has become the most common SCCmec type in inpatients of our university hospital. The SCCmec type IV/IVA is present in both CA-MRSA and HA-MRSA limiting its use as a marker for CA-MRSA.

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