

**Analysis of meticillin-susceptible and meticillin-resistant biofilm-forming *Staphylococcus aureus* from catheter infections isolated in a large Italian hospital.**

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Abstract

Several characteristics were analysed in 37 *Staphylococcus aureus* isolates from nosocomial catheter infections: the PFGE profile after SmaI digestion of chromosomal DNA, the ability to form a biofilm on a polystyrene surface, antibiotic susceptibility patterns (penicillin, oxacillin, erythromycin, tetracycline, clindamycin, telithromycin, gentamicin, ciprofloxacin, quinupristin/dalfopristin, rifampicin, vancomycin and linezolid), and the presence of genetic determinants of antibiotic resistance and biofilm formation. All strains but three (92 %) were able to grow on a plastic surface as a biofilm. An almost complete association was found between phenotypes and genotypic traits of antibiotic resistance, whilst PFGE profiling showed the highly polyclonal composition of the set of strains under study. Sixteen isolates (43 %) were meticillin-resistant and were subjected to staphylococcal cassette chromosome mec (SCCmec) and cassette chromosome recombinase (ccr) complex type determination by multiplex PCR. Only a subgroup of six strains belonged to the archaic clone PFGE type and bore the SCCmec/ccrAB type I structure. Among the remaining strains some presented small rearrangements of the SCCmec/ccrAB genetic locus, whilst others could barely be traced back to a known structural type. These observations suggest that, at the local level and at a particular site of infection, *S. aureus* may show great genetic variability and escape the general rule of expansion of the *S. aureus* pandemic clones.