TITLE: DETECTION OF AN INTERNATIONAL MULTIRESISTANT CLONE OF METHICILLIN-RESISTANT *Staphylococcus pseudintermedius* AMONG COLONIZED AND INFECTED DOGS OF RIO DE JANEIRO, BRAZIL

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ABSTRACT

Staphylococcus pseudintermedius is the main coagulase-positive staphylococci associated with canine skin/soft tissue infections (SSTI), external otitis and surgical-site infections. It is of concern that methicillin-resistant *S. pseudintermedius* (MRSP) isolates have increasingly been detected in infected dogs. In the year of 2010, the spread of an international epidemic, multiresistant, clone of MRSP, the so-called European clone—displaying sequence type (ST) 71—was reported in Europe and USA. In this work, we assess the presence of this MRSP clone in colonized and infected dogs. Two hundred eighty-two dogs were investigated including healthy (n=88) and diseased dogs (otitis externa, n=122; skin infection, n=72). The *S. pseudintermedius* identification was carried out by routine biochemical identification and by a PCR-based method. Methicillin resistance was confirmed by a PCR assay targeting the *mecA* gene. Genotyping was performed by pulsed-field gel electrophoresis (PFGE) and multi-locus sequencing type (MLST). Methicillin resistance was detected in 16.4% (n=19) of the total *S. pseudintermedius* recovered (n=116). The PFGE patterns of the MRSP isolates (n=19/19; 100%) were quite similar to that of the European clone ST71. Indeed, the presence of this clone among the MRSP examined was confirmed by MLST. All MRSP isolates displayed resistance to other antimicrobial classes and were mutliresistant. Our data revealed the spread of a well-fit MRSP strain among dogs in Rio, whose potential widespread would considerably restrict the choice of an effective antimicrobial therapy. It has already been demonstrated that the ST71 MRSP—geographically spread over Europe and USA—have also high-level multiresistance, in addition to the potential for zoonotic infections. The prospective of ST71 isolates to exhibit resistance to virtually all antimicrobials used in veterinary medicine is alarming and should be regard as a main issue, considering both the potential of MRSP isolates to spread over large geographic distance and its transmission from animals to humans. Finally, we recommend that a regular monitoring of MRSP clones in diseased animals should be mandatory to allow risk assessment and consequent development of more rational intervention strategies to limit the spread of these bacteria.

Keywords: *Staphylococcus pseudintermedius*, Antimicrobial Resistance, MRSP, ST71.
Development Agency: Coordenação de Aperfeiçoamento de Pessoal de Nível Superior – CAPES.