

EVALUTION OF METHODS FOR THE DETECTION OF MRSA IN PATIENTS OF BOTUCATU MEDICAL SCHOOL HOSPITAL, SÃO PAULO, BRAZIL

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ABSTRACT: Oxacillin is the main drug of choice for the treatment of *S. aureus* infections. However, *S. aureus* resistance to oxacillin has become a major problem in the recent decades. The study aimed assess the rates of oxacillin resistance in *S. aureus* samples obtained at the Botucatu Medical School Hospital, UNESP, and to compare phenotypic techniques for the detection of MRSA against the gold standard method (*mecA* gene detection) in these samples. A total of 102 samples, previously isolated between 2002 and 2006, and kept at the Culture Collection of the Department of Microbiology and Immunology, in the Botucatu Biosciences Institute, UNESP, were included. Oxacillin resistance was assessed by oxacillin and cefoxitin disk diffusion and agar dilution tests, screening tests using Mueller-Hinton agar with 6 µg/mL of oxacillin and 4% NaCl, E-test, and *mecA* gene detection. Of the samples analyzed, 46 (45.1%) were *mecA*-positive. Oxacillin disk sensitivity and specificity were 86.9% and 91.1%, respectively. Cefoxitin disk sensitivity and specificity were respectively 91.3% and 91.1%. The screening test with the cefoxitin disk showed almost the same level of sensitivity (91.3%) and specificity (91.1%). With E-test strips, sensitivity was higher (97.8%) and specificity was comparable to that found with the other methods (91.1%). Ninety-three percent of the samples produced β-lactamase and five of them were *mecA*-negative. There was a gradual increase in the number of oxacillin-resistant *S. aureus* samples between 2002 and 2004. However, from 2004 to 2006, the number of resistant samples dropped from 55% of MRSA in 2004, to 45% in 2005 and 34.6% in 2006. The data obtained reveal that, among phenotypic methods, the E-test yielded the best results, with higher sensitivity levels

when compared to the other methods. The decreased resistance rate observed over the most recent years may be explained by the rational use of antimicrobial agents associated with good practices in the control of hospital infection, or may be related to the diminished use of oxacillin as a treatment option.

KEY WORDS: oxacillin, *mecA*, MRSA, *Staphylococcus aureus*.

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