

R163

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Antimicrobials: Epidemiology of MRSA, VRE and other Gram-positives

Evaluation of the risk factors associated with community-acquired *Staphylococcus aureus* nasal carriage

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Objectives: The epidemiology of *S.aureus* infections has changed worldwide and MRSA is now frequently found as a community associated (CA) pathogen. The aim of this study was to assess the prevalence and determine risks for CA-*S.aureus* infections.

Methods: A total of 1220 nasal swab samples taken from patients admitted to Public Healthcare Center, Karabuk, during the study period June-October 2012, were studied. The patients were classified as CA and hospital acquired (HA) for MRSA infection by CDC criteria. Methicillin resistance was determined by disk diffusion (DD) method with oxacillin and ceftioxin disks and confirmed with oxacillin salt screen agar test and ceftioxin E-test (AB, Biodisk, Solna) according to the CLSI guidelines. Categorical data were compared by the chi-square test or Fisher's exact test, using SPSS 15.0 software package programme. All hypotheses were two-tailed and were considered significant at the $P < 0.05$ level.

Results: Of 1220 samples 216 (17.7%) were identified as *S.aureus* and ten (4.6%) were methicillin resistant with oxacillin, 12 (5.5%) with ceftioxin DD test, oxacillin salt screen agar test and ceftioxin E-test. 320 (26.2%) patients had risk factors associated with MRSA infection. According to CDC case description four isolates out of 12 were true CA-MRSA strains. The most common chronic underlying diseases among patients were chronic obstructive lung diseases (13%) followed by diabetes mellitus (11%) and skin disorders such as dermatitis (10%), psoriasis (5%). As for the **potential risk factors; variables associated with evidence of MRSA were hospital attendance of the individuals and close relatives, recurrent skin infections ($p \leq 0.05$), living in a crowded house, surgery and residence in a nursing home ($p > 0.05$).**

Conclusions: This study indicates that **ceftioxin disk diffusion test along with oxacillin salt screen agar test should be performed for methicillin resistance detection especially in the laboratories that could not afford E-test. Although low rates for CA-MRSA among nasal carriage samples was detected in the study group, nasal carriage screening of the outpatients is highly recommended to prevent the distribution of the resistant strains.**