Prevalence of Agr Specificity Groups among Staphylococcus aureus Isolates from Hospitals in Tehran

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Background & Objectives: *Staphylococcus aureus* is a major pathogen responsible for both nosocomial and community acquired infections. This pathogen causes a wide range of diseases including septicemia, meningitis, endocarditis, osteomielitis, septic arthritis, toxic shock syndrome and food poisoning. The pathogenic capacity of *Staphylococcus aureus* is clearly dependent on its production of various virulence factors. The synthesis of this virulence factors is globally regulated by an *S. aureus* Quorum-sensing system called the accessory gene regulator (agr). The aim of this study was to determine of agr specific group in *S.aureus* isolates from different clinical and healthy specimens, and a possible relationship between agr groups and infection types and antibioticresistance.

Methods : In a total of 215 S. aureus strains isolated, antibiotic susceptibility was determined and agr specific groups were identified by multiplex PCR. 215 S. aureus isolates were collected from different teaching hospitals in Tehran. Susceptibility testing was conducted by disk diffusion according to the guidelines of the National Committee for Clinical Laboratory Standards (NCCLS). After incubation at 37°C for 24h, samples were extracted with the conventional lysostaphin Methods. The agr specificity groups were determined by 2 duplex PCR.

Results: The majority of isolates belonged to agr group I (56.94%), followed by agr agr group III (17.59%), group II (14.35%), and agr group IV (11.11%). Although agr group I was very prevalent in all specimens, agr-specific group II was dominant in nasal swabs, agr-specific group III was prevalent in respiratory tract specimens, and agr-specific group IV was higher in cutaneous specimens.

Keywords: Agr Groups; *Staphylococcus aureus*; Duplex PCR