

Frequency of Antibiotic Resistance Genes to Methicillin and Mupirocin in *Staphylococcus aureus* Strains Resistance to Mentioned Antibiotics Isolated From Talaghani Hospital by Multiplex-PCR

Effat Abbasi Montazeri*; Davood Darban; Azardokht Khosravi; Hamed Goodarzi;

Department of Microbiology, Faculty of Medicine, Ahvaz Jundishapur University of Medical Sciences, Ahvaz, Iran

ea1347@yahoo.com

Background & Objectives: Methicillin-resistant *Staphylococcus aureus* (MRSA) is still a problem in the world. Hospital staff being that infected with methicillin-resistant *Staphylococcus aureus* and its possible transmission to patients, is the other problem. One of the strategies that suggested eradicating the *Staphylococcus aureus* in the nose of hospital personnel was an antibiotic called mupirocin that was used in 1985. Despite the good effect of drug on gram-positive cocci, particularly *Staphylococcus aureus*, the bacteria gradually have showed the resistance to the drug. Knowledge of the existence of strains that resistant to methicillin and mupirocin in the hospital personnel is very important for obtaining appropriate health measures. Our main objective of this study is investigation of *Staphylococcus aureus* strains isolated from patients and staff in terms of existence of methicillin and mupirocin resistance genes. Furthermore, burn patients are more susceptible to infection than other patients, so the importance of knowing the strains at the hospital is critical.

Methods: Number of one hundred fifteen *Staphylococcus aureus* and *Staphylococcus epidermidis* isolated were collected from patients in Taleghani Hospital in Ahvaz, Iran in 1998. Bacterial DNA was extracted using boiling methods. The Multiplex-PCR assay used for detection of *mecA*, *femA* and *Mup* genes.

Results: MRSA strains isolated from staff and patients are 72.5% and 73% respectively. But resistance to methicillin in the epidermidis strains in staff and patients was 92.5% and 66.5% respectively. Mupirocin-resistant *Staphylococcus aureus* strains in patients and staff were 6.3% and 27% respectively. The percentage of mupirocin resistance aureus strains isolated from personnel was 4 times the strains that isolated from patients. Epidermidis strains isolated from patients and staff, 16.5% and 17% were resistant to mupirocin respectively. Thirteen percent of resistant *Staphylococcus aureus* strains were resistant to methicillin and mupirocin (MMRSA) simultaneously.

Conclusion: Simultaneous resistant to methicillin and mupirocin in epidermidis strains was 19.2% that most of them isolated from the personnel. Existence of resistance genes in *Staphylococcus epidermidis* isolates is very dangerous, both in terms of disease caused by these strains and the possibility of transferring resistance genes to *Staphylococcus aureus* strains. The close relationship between the staff and patients and the possibility of transferring of the strains to the burn and susceptible patients, confute more attention to health points in this hospital.

Keywords: Methicillin; Antibiotic Resistance ; Mupirocin; *Staphylococcus aureus*