Detection of Methicillin-Resistant *Staphylococcus Aureus* by Phenotypical and Molecular Methods among Clinical Isolates

**Abstract**

**Background and Objective:** Increasing prevalence of methicillin resistant *Staphylococcus aureus* strains (MRSA) with their multidrug resistance potential causes difficulties in the treatment of infections due to these bacteria. Hence, the detection and determination of the frequency of MRSA strains via phenotypical and molecular methods is necessary in different parts of the county.

**Material and Methods:** In this cross-sectional study, 150 *Staphylococcus aureus* strains were collected from different clinical samples in the hospitals located in Shiraz and Jahrom, Iran. To detect methicillin resistant *Staphylococcus aureus* strains, we used phenotypical methods such as disc diffusion and E-Test, and PCR molecular method for mass gene.

**Results:** The frequency of methicillin resistant *Staphylococcus aureus* was 63 strains (42%) using disc diffusion and E-Test. While in PCR method, in addition to 63 strains, nine other isolates, which were sensitive to oxacillin by disc diffusion and E-Test, possessed also *mecA* gene. By and large, 72 isolates (48%) had methicillin resistance gene.

**Conclusion:** Given the results of phenotypical and molecular methods, the frequency of methicillin resistant *Staphylococcus aureus* was relatively high in this area. Thus, the MRSA strains can be detectable as soon as possible by accurate and sensitive methods such as PCR to determine the effective antibiotics.

**Keywords:** Methicillin Resistant *Staphylococcus Aureus*, MRSA, *MecA* Gene, PCR