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**Title:** Phenotypic and genotypic evaluation of fluoroquinolones resistance in clinical isolates of Staphylococcus aureus in Tehran

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**Abstract:**

*S. aureus* is a great global concern which can cause serious infection in both hospitals and community. Fluoroquinolones (FQNs) are broad-spectrum antibiotics with low side effects that are widely used in treatment of bacterial infections such as *S. aureus* infections but resistance to these antibiotics is increasing. FQNs inhibit function of DNA gyrase and topoisomerase IV enzymes. In this study, we determined the resistance level of various strains of *S. aureus* to FQNs and the occurrence of mutations in the gyrA and grlA genes.

**Methods**

A total of 164 *S. aureus* clinical isolates were cultured from patients attending to two hospitals in Tehran from June 2009 to June 2010. Susceptibility of *S. aureus* isolates to FQNs was determined with Disk Agar Diffusion. Minimum Inhibitory Concentration (MIC) of all isolates was done by microdilution broth. Mutation in resistant isolates was targeted by PCR and Sequencing. All FQN resistant *S. aureus* isolates were analyzed by Pulsed-field gel electrophoresis (PFGE).

**Results**

In the present study, out of the 164 *S. aureus* isolates, 83 (50%) and 69 (42%) were resistant to methicillin and FQN. Additionally, 80% of MRSA isolates and 5% of MSSA isolates were resistant to FQNs. In all FQN resistant isolates assessed, a mutation in the grlA gene was observed at codon 80 and they had different combination of mutations in the gyrA gene. The forty five isolates at codons 84 & 86 and twenty three isolates at codons 84, 86 and 106, one isolate at codon 84,86,90. FQN resistant *S. aureus* isolates were clustered into 32 PFGE types.

**Conclusion**

The findings of this study showed FQN resistant *S. aureus* isolates in the teaching hospitals in Tehran had multiple mutations and were highly resistant to FQN.

**MRSA, Resistance, fluoroquinolone, PFGE, gyrA, grlA**

**Presentation:** Poster