Methicillin Resistant *Staphylococcus aureus* (MRSA) in Riyadh, Saudi Arabia, Where do we stand?


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**Introduction**

- The versatile opportunistic pathogen, MRSA, causes a variety of suppurative infections in humans, ranging from relatively mild to life-threatening conditions.
- *S. aureus* is a major cause of hospital acquired (nosocomial) infection of surgical wounds as well as infections associated with indwelling medical devices.
- A major attribute of *S. aureus* which complicates treatment of its infections, is the resistance to multiple antibiotics (1).

**Objectives**

- The present study was designed to:
  - Track the presence of MRSA strains.
  - Perform comparative chromosomal DNA analysis of MRSA strains using pulsed-field gel electrophoresis.
  - Detect decreased susceptibility to vancomycin.

**Material and Methods**

- A total of 335 isolates of MRSA were procured from 4 major hospitals in Riyadh, Saudi Arabia.
- Isolates were identified as MRSA strains according to The National Committee for Clinical Laboratory Standards (NCCLS) guidelines(2).
- A comparative study has been carried out between Pulsed Field Gel Electrophoresis (PFGE) according to the Matushek technique, the standardized Canadian technique, and the standardized European technique(3,4,5).
- Molecular typing of MRSA in major hospitals in Riyadh, Saudi Arabia was carried out by the Matushek PFGE using Smal enzyme which is the "gold standard" for typing MRSA(5).
- Surveillance of MRSA with decreased susceptibility to vancomycin was performed according to NCCLS guidelines(5).

**Results**

![PFGE dendogram by BioNumerics 2 software using Matushek protocol. Cluster analysis was done based on Dice coefficient with unweighted pair group method using arithmetic averages (UPGMA), band tolerance 1.25% and optimization 4%. Similarity coefficient was set at 80%.

- Up to date, none of the studied isolates has been found to have decreased sensitivity to vancomycin.

**Conclusions**

- Six major lineages of MRSA have been found in the four hospitals studied with type M1 being the most prevalent (92 isolates).
- M1 has been isolated from all included hospitals indicating its widespread existence.
- Vancomycin resistant *S. aureus* has not yet set foot in our hospitals.

**References**

2- National Committee for Clinical Laboratory Standards. 2004.

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