

Mupirocin resistance of *Staphylococcus aureus* in clinical isolates and nasal carriage isolates

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Introduction

Mupirocin resistance in *Staphylococcus aureus* is increasingly reported in many parts of the world. This study was carried out to describe high-level and low-level mupirocin resistance of *Staphylococcus aureus* clinical isolates and nasal carriage isolates.

Methods

A descriptive cross-sectional study was carried out using 45 nasal isolates of *S. aureus* collected from healthy university students in Colombo and 249 clinical isolates of *S. aureus* from the National Hospital of Sri Lanka, isolated from 15/03/2019 to 15/05/2019. Isolates were tested using the disk diffusion method with 5 µg mupirocin disk and 200 µg mupirocin disk for mupirocin resistance as well as cefoxitin 30 µg disk for methicillin resistance. Isolates which showed resistance only to 5 µg mupirocin disk (<14mm zone diameter) were categorized as low-level mupirocin resistant and isolates which showed resistance (no zone diameter) to both 5 µg and 200 µg disks were categorized as high-level mupirocin resistant.

Results

Among the 45 nasal carriage isolates, 33 (73%) were methicillin sensitive *S. aureus* (MSSA) and 12 (27%) were methicillin resistant *S. aureus* (MRSA). Among the clinical isolates, majority were MRSA 158 (63.45%) while only 91 (36.55%) MSSA. The overall mupirocin resistance rate among *S. aureus* was 13/294 (4.42%). Of these, 11/294 (3.74%) had low-level resistance and 2/294 (0.68%) had high-level resistance. Mupirocin low-level and high-level resistance in MRSA isolates were 9/170 (5.29%) and 1/170 (0.58%) respectively. MSSA isolates demonstrated 2/124 (1.61%) and 1/124 (0.8%) mupirocin low-level and high-level resistances respectively. None of the nasal isolates were resistant to mupirocin while 15/249 (6.02%) mupirocin low-level resistance and 2/249 (0.8%) mupirocin high-level resistance was observed in clinical isolates.

Conclusion

This initial survey of mupirocin resistance among *S. aureus* shows although the overall mupirocin resistance is relatively low in this population, regular surveillance of mupirocin resistance remains a necessity.

Keywords: Mupirocin, resistance, *Staphylococcus aureus*, nasal, MRSA

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