

Abstract

Staphylococcus aureus is known to cause community and health care associated infections. Colonizing *Staphylococcus aureus* can cause infection in the host. Main treatment for infections with methicillin resistant *Staphylococcus aureus* (MRSA) is vancomycin and the development of reduced susceptibility to vancomycin in *Staphylococcus aureus* can result in treatment failure.

The objective of this study was to determine the distribution of vancomycin minimum inhibitory concentrations (MIC) in *Staphylococcus aureus* strains isolated from the colonizing flora of the population in the Colombo District, Sri Lanka. Factors which could be associated with high vancomycin MIC values (≥ 2 $\mu\text{g/ml}$) were also evaluated.

The study was conducted as a descriptive cross sectional study in the community. A total of 57 study participants aged more than 18 years, who were previously known to be colonized by *Staphylococcus aureus* were included. They were selected randomly from each Divisional Secretariat area of the Colombo District. Nasal, axillary and groin swabs were taken from each participant and one *Staphylococcus aureus* isolate from each participant was taken for further evaluation. *Staphylococcus aureus* was identified by conventional laboratory methods and detection of MRSA and vancomycin MIC was done using the Vitek 2 (bioMerieux) automated antibiotic sensitivity testing system.

Out of the 57 isolates of *Staphylococcus aureus*, the proportion of isolates with vancomycin MIC \leq 0.5, 1 and 2 $\mu\text{g/ml}$ was 52.63%, 38.60% and 8.77% respectively. MIC of all the isolates was within the vancomycin susceptible range. There was no statistically significant association between MRSA and high MIC for vancomycin. No association between high vancomycin MIC of *Staphylococcus aureus* and factors such as recent hospital admission, exposure to antibiotics, open water, agrochemicals, consumption of meat, fish and prawns and having a household contact with exposure to health care environment was seen.

Vancomycin minimum inhibitory concentration (MIC) of *Staphylococcus aureus* isolated from colonizing flora of the population in the Colombo District ranges from \leq 0.5 - 2 $\mu\text{g/ml}$. There was no statistically significant difference between MSSA and MRSA when the proportion of isolates with high vancomycin MIC values (\geq 2 $\mu\text{g/ml}$) was concerned.

Key words: *Staphylococcus aureus*, Vancomycin, Minimum inhibitory concentration, Sri Lanka, Antibiotic resistance