Prevalence of community-associated *Staphylococcus aureus* strains among university students

Shil A.[1,A,B,C,D], Bishayi B.[2,A,C,F,], Sikdar (ne'e Bhakta) M.[*1,A,C,D,E, F]

1. Microbiology, Nutrition and Dietetics Laboratory, Physiology Unit, Department of Life Sciences, Presidency University, Kolkata, India
2. Department of Physiology, Immunology Laboratory, University of Calcutta, University Colleges of Science and Technology, Kolkata, India

A- Conception and study design; **B -** Collection of data; **C -** Data analysis; **D -** Writing the paper;
E- Review article; **F** - Approval of the final version of the article; **G** - Other (please specify)

ABSTRACT

Purpose: Colonization of multiple antibiotic resistant *Staphylococcus aureus* (*S. aureus*) in nasal cavity is associated with heightened risk of infections. The emergence and spread of multiple antibiotic resistant community-associated (MAR-CA) *S. aureus* strains has worsened the situation. The aim of this study was to assess the rate of prevalence and patterns of antibiotic resistance in *S. aureus* strains isolated from members of the student community in Presidency University, Kolkata, India,.

Materials and methods: *S. aureus* isolates from university students were subjected to phenotypic and genotypic identification, construction of phylogenetic tree and submission of 16S rRNA sequences to GeneBank. Statistical analysis was done using Chi-square test to evaluate the significance of risk factors on the prevalence of community- associated (CA) and multiple antibiotic resistant *S. aureus* strains.

Results: Outcome of this study discloses the highest nasal colonization rate is that of CA- *S. aureus* strains (51.11%), followed by CA-MRSA strains (13.08%). 9.66% of the colonized strains are MAR (Multiple Antibiotic Resistant) CA- *S. aureus*.

Conclusions: High nasal carriage rates of CA and MAR *S. aureus* strains point to increased risk of development of life threatening infections whenever these commensal microorganisms come in contact with carrier's blood. They can raise mortality rates by damaging cardiovascular and respiratory systems by causing endocarditis and pneumonia respectively, which are difficult to treat using antibiotics. This study conveys an alarming message, since it points to the insufficiency of antibiotics for the treatment of infectious diseases. Awareness about the prudent use of antibiotics, restricted and judicious antibiotic use and alternative therapeutic measures can help to keep the situation under control.

Keywords: *Staphylococcus aureus*, Community-associated methicillin-resistant, Multiple antibiotic resistant, Nasal carriage.

DOI: 10.5604/01.3001.0015.6400