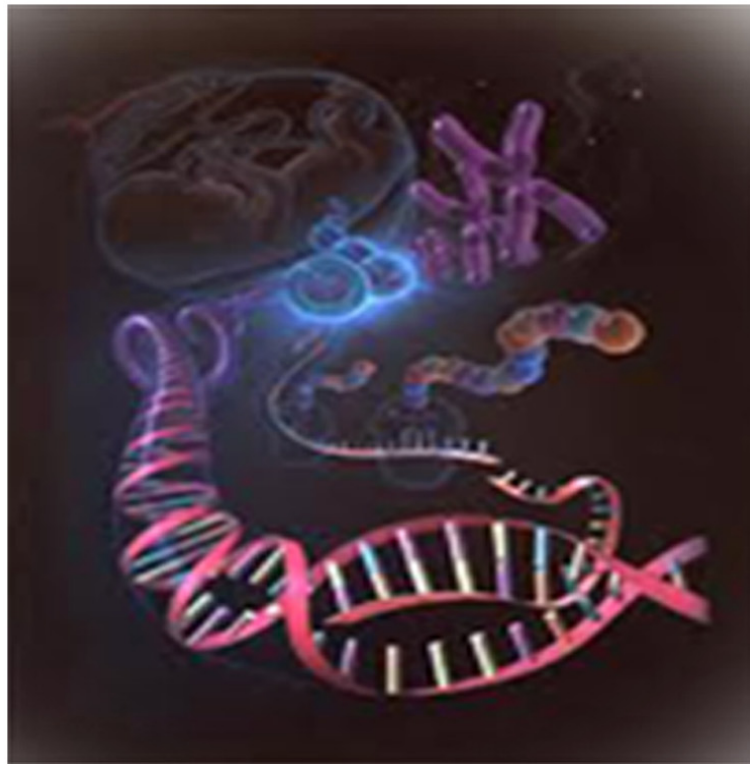




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Research Paper

## CHANGING TRENDS OF MRSA PATTERN IN MAHARISHI MARKANDESHWAR INSTITUTE OF MEDICAL SCIENCES AND RESEARCH, MULLANA, AMBALA

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Methicillin-resistant *Staphylococcus aureus* (MRSA) is an important nosocomial and community pathogen. The prevalence of MRSA within the hospital environment has increased in the recent years. According to recent reports, infection rate of MRSA has been doubled, which has increased the morbidity and mortality among the patients. The objective of this study was to determine the prevalence of MRSA strains in clinical specimens and to determine the sensitivity pattern of these strains against various antibiotics.

**Keywords:** Antibiotic resistance, Human pathogen, MRSA, Oxacillin resistance

### INTRODUCTION

*Staphylococcus aureus* is one of the most significant human pathogen that causes both nosocomial and community-acquired infection (Diekema *et al.*, 2001). Methicillin resistant *Staphylococcus aureus* (MRSA) emerged in the 1960 as a cause of infection among patients exposed to the bacteria in health care centers (Barrett *et al.*, 1968). The common types of disease caused by *Staphylococcus aureus* are various types of skin infections including; Staphylococcal Scalded Skin Syndrome (SSSS), Osteomyelitis, Meningitis, Pneumonia, Septicemia, Gastroenteritis, etc. Strains of *S.aureus* that are resistant to methicillin (and

oxacillin) have spread worldwide from the last four decades (Ambramson and Sexton, 1992). According to recent studies, the prevalence of MRSA has increased in recent years leading to increased morbidity and mortality (Rajaduraiipandi *et al.*, 2006). The prolonged hospital stay, increased use of antibiotics, lack of awareness are some possible predisposing factors responsible for emergence and increasing prevalence of MRSA strains worldwide (Anuparba *et al.*, 2003).

The present study aims to calculate prevalence of MRSA strains existing in hospital population and to study antibiotic sensitivity pattern of such strains.

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## MATERIALS AND METHODS

In this retrospective study, the strains were isolated from pus samples received in Department of Microbiology, MMIMSR, Mullana, Ambala during period of one year, i.e., from January 2011 to January 2012. The samples were processed using standard methods (CLSI, 2006) and antibiotic sensitivity was carried out using Kirby-Bauer method. All the strains were screened for MRSA using oxacillin discs (1 µg).

## RESULTS

Out of 967 pus samples received, *S. aureus* was found to be 387 (40%). Among isolates of *S. aureus*, 110 (28.4%) isolates were found to be Methicillin resistant. Drug resistance pattern of MRSA isolates is as follows: Penicillin-110 (100%), Gentamicin-44 (40%), Erythromycin-63 (57%), Oxacillin-110 (100%), Tetracycline-77 (70%), Vancomycin-1 (0.9%).

## DISCUSSION

A number of studies have been conducted on prevalence of MRSA in various hospitals and tertiary care centres. Prevalence of 34%, 54.85%, 44% and 16.27% have been reported by various authors from South India (Anila, 2010), Eastern UP (Anupurba *et al.*, 2003), New Delhi (Arti, 2008), Moradabad (Singh *et al.*, 2013). Our study shows that prevalence of MRSA strains in pus samples is 11.3% in this institute.

The highest level of resistance of *S. aureus* has been observed with penicillin (100%), which is in accordance with the reports of Tiwari *et al.* (2009).

## CONCLUSION

Prevalence of MRSA in this study was 11.3%. It

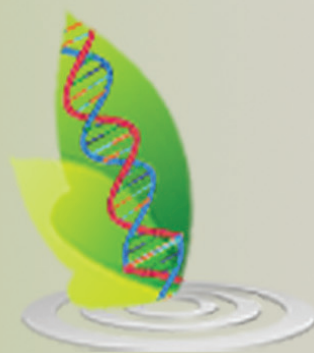
is concluded that antibiotics other than Vancomycin can be used as anti-MRSA agents after a sensitivity test so as to preclude the emergence of resistance to it.

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