

Screening Of Methicillin Resistant Staphylococcus Aureus In Patients Attending Dental Teaching Hospital

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Abstract: Introduction : MRSA (Methicillin Resistant Staphylococcus aureus) is a major health care associated and community associated problem . Methicillin Resistant Staphylococcus aureus (MRSA) is one of the commensal organisms found in normal healthy individual's anterior nares, throat and axilla. It is multi drug resistant organism and involved as one of the major cause of hospital acquired infections (HAI). Objectives : The present study was undertaken to know the prevalence of MRSA in patients attending dental Out Patient Department (OPD) in a teaching dental hospital. Material and methods : Total 100 patients were included with mean age 33.6 ± 13.9 , out of which 51 were female patients and 49 were male patients .Swabs collected from anterior nares and throat were plated on Mannitol Salt Agar which showed no growth for MRSA. Conclusion:Prevalance of MRSA in our Dental college is nil , so pre-requisite for screening MRSA before any dental procedure is not necessary [Saxena R et al NJIRM 2013; 4(2) : 57-59]

Key Words: Methicillin Resistant Staphylococcus aureus (MRSA), Dental settings, Prevalence

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Introduction: Staphylococcus aureus is Gram positive cocci occurs ubiquitously and as a normal flora in healthy individuals¹ It is involved in urinary tract infections, pneumonia, osteomyelitis, skin and soft-tissue infection , bacteremia, and other invasive infections². It occurs as normal flora in healthy individuals. It acquires resistance to methicillin due to which it is referred as Methicillin resistant Staphylococcus aureus (MRSA)³. It is a multi- drug resistant organism which is responsible for hospital acquired infections^{4,5} It gained importance since 1960s due to multi drug resistance⁶. They spread very quickly in hospitals leading to serious infections if standard or isolation precautions are not maintained⁷ Increased rate of isolation of MRSA within the hospitals is used as indicator of quality care⁸

The patients undergoing elective surgeries are generally screened for the presence of MRSA in the anterior nares and axilla especially in medicine⁹ Screening for MRSA in dental patients has not been studied so far as per our knowledge in India. The aim of the present study was to determine the presence of MRSA in anterior nares and throat in patients attending dental OPD. Screening of the patients before any elective invasive procedures for the presence of MRSA is an essential prerequisite to avoid infections in soft tissue and prevent hospital acquired infections these MRSA

have acquired resistance to wide range of antibiotics , so prevention of it will decrease the cost of treatment and patient stay in the hospital .

Material and Methods: The present study was conducted in Department of General Pathology and Microbiology, Sinhgad Dental College and Hospital Pune. Total 100 patients were included from the dental OPD with prior written consent before participating in the study. The sampling was done as a random sampling method irrespective of age and gender bias. The study was approved by the Institutional Review Board of the college. Two swabs (anterior nares and throat) from each patient were collected by moistening in sterile saline. Immediately swabs were plated on Mannitol Salt Agar (MSA) and also stained with Gram staining method. Plates were then incubated at 37°C for 24 to 48 hours. On second day the plates were observed for the presence of yellow colonies on MSA plates. After confirmation with catalase test, coagulase test (tube test) the colonies were subjected to sensitivity to cefoxitin disc (Hi Media) on Muller Hinton agar plates. The interpretation of sensitivity and resistance was done by using Hi Media sensitivity chart.

Results: Total 100 patients were included in the present study with mean age group 33.6 ± 13.9 .

The distribution of cases as per age, sex and profession is shown in table no.1, 2 & 3.

Table no.1:Age wise distribution of cases

Age category	No. of cases
10 – 20	11
21 – 30	43
31 – 40	19
41 – 50	12
51 onwards	15

Table 2: Sex wise distribution of cases

Sex category	No. of cases
Female	51
Male	49

Table 3: profession wise distribution of cases

Profession	No. of cases
Housewife	34
Students	26
Other	40

Majority of the cases were females and housewives are more common than any other profession. More dominant age group was in the age group of 21 - 30. No positive case of MRSA carriage was found from nasal or throat swab in the present study.

Discussion: Majority of the cases screened were housewife followed by the students. While the dominant age group was found to be from 21 year to 30 year old. The reason might be that in this age group the attention is more towards the personal look and oral care. Majority of people came to OPD for pain in jaw followed by the cleaning of teeth. Few people were also complained about the decaying tooth and restoration. In the present study we did not find any patient with systemic illnesses, smokers and drinking habits.

To our knowledge there are no studies exclusively done for the screening of MRSA presence in the nasal as well as throat carriage in the patients who are attending the dental problems in India. In the present study not a single case which has been screened showed the presence of MRSA. The

overall prevalence of MRSA carriage in the general population is 1% (10). The prevalence of MRSA has increased from 12 to 80% (11).

One main reason for undertaking the present study was to know the prevalence of MRSA in patients who are taking services for dental ailments. Not a single study has been carried out in patients attending the dental care facilities so far in India as per our knowledge. One study has been conducted to know the prevalence of MRSA in dental professionals in whom it was found to be 4.2%¹⁰.

The patients in general medicine undergoing for elective surgeries are screened for the presence for MRSA as a prerequisite. But such prerequisite is not there in dental care facilities. But if prevalence of MRSA is higher then pre-requisite of screening should be there in dental patients to prevent hospital acquired infections and community associated problem because MRSA known to undergo rapid evolution, strains of certain phage types are more virulent and spread rapidly in hospitals. The prevalence of MRSA continues to increase world wide and potential source of many significant clinical problems. So before we could come to any conclusion is there any need of screening of patients for the presence of MRSA in dental patients, this study was undertaken. With the current findings we suggest that there is no need of screening of patients for the presence of MRSA in our dental college settings at the present moment but we should have continuous surveillance of MRSA to prevent hospital acquired infections.

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