



Original Research Article

MRSA- its incidence and implications in seropositive children

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ABSTRACT

Introduction: Since the emergence of more and more HIV infected individuals and increasing trend of community acquired Methicillin resistance *Staphylococcus aureus*, it is important to know the prevalence of MRSA in a community.

Materials and Methods: Nasal and axillary swabs were taken from a community centre for seropositive children and processed for isolation of MRSA by CLSI 2015 guidelines.

Results: Among the 90 *Staphylococcus aureus*, 33(34.8%) were resistant to methicillin and to ceftriaxone 22%, ciprofloxacin 26%, clindamycin 17%, co-trimoxazole 6.2%, erythromycin 29.7%, tetracycline 15.4% and chloramphenicol 8.4%.

Conclusion: From the above study it can be concluded that community acquired MRSA is increasing among the seropositive patients and they should be treated with mupirocin and chlorhexidine which will be helpful in decreasing the morbidity and mortality associated with it.

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1. Introduction

In the course of recent years, network related methicillin-safe *Staphylococcus aureus* contaminations (CA-MRSA) have risen. Individuals living with human immunodeficiency infection (PLWH) have been disproportionately influenced by both HA (Hospital obtained) - and CA-MRSA as confirm by their expanded recurrence of *Staphylococcus aureus* colonization, skin diseases, and obtrusive circulatory system contaminations.^{1–3} The expanded occurrence of *S. aureus* contaminations is likely multifactorial and incorporates conduct, have safe, and pathogen factors.⁴ Additionally, extreme immunodeficiency as showed by low CD4 tallies fundamentally add to more terrible *S. aureus* results.⁵ In spite of the fact that this bacterium colonizes more in the foremost nares of HIV-contaminated patients, a few kinds like MRSA beat field gel electrophoresis (PFGE) type USA300 with higher need colonizes in the posterior, private parts, and perineum.⁶ This populace is in danger

for CA-MRSA more than HA-MRSA contaminations on account of covering network systems.⁷ These patients show *Staphylococcus aureus* contaminations and colonization specifically skin and delicate tissue diseases (SSTIs). MRSA contaminations are a test for doctors in creating nations to treat due to the restricted decision of remedial alternatives accessible⁸ and because of the probability of accompanying medication obstruction of the MRSA to different antimicrobials. MRSA are likewise a test to patients in creating settings because of expanded expense of care.^{9,10} The monetary weight of MRSA care in areas of constrained asset, for example, India, isn't relied upon to be simple on the grounds that there are different needs, for example, TB, HIV and intestinal sickness as of now.¹¹

2. Materials and Methods

The investigation was done in a network care focus of Jodhpur locale where seropositive vagrant kids dwell and the objective was to comprehend the colonization example of MRSA in the improvement of preventive procedure.

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Table 1: Association of various factors to MRSA count

Factors	MRSA Count	Percent	P value
Time of affection with HIV			0.355
0-1	3	13.0	
1-5	10	43.5	
5-10	7	30.43	
> 10	3	13.0	
Precedent hospitalization			0.032
No	12	52.2	
Yes	11	47.8	
Skin disease history			0.465
No	19	82.6	
Yes	4	17.4	
Infectious disease history			0.040
No	12	52.2	
Yes	11	47.8	
Background illness			*
No	23	100.0	
Yes	0	0	
Sex			0.063
Male	19	82.6	
Female	4	17.4	
Age			0.171
< 5	17	73.9	
> 5	6	26.1	

Nasal swab tests (both ways) were gathered from 180 HIV positive patients. For every patient an example gathered from the nares with a dry, un-saturated sterile swab. The tip of the swab was embedded roughly 2.5 cm into the nares and moved multiple times in every nostril. In the research center, first the examples were classified and refined on particular and differential media (Mannitol Salt Agar, Sheep Blood Agar, Himedia, India) and hatched at 37°C for 48 hours. Developed states on these media were distinguished as *Staphylococcus aureus* with morphology, gram staining and enzymatic tests which included catalase, coagulase and DNase test. At that point, circle dissemination test dependent on Clinical and Laboratory Standard Institute (CLSI) proposals¹² was utilized for the confines to assess their weakness to methicillin. For MRSA location, first bacterial suspensions equivalent to 0.5 McFarland tube were produced using *Staphylococcus aureus* segregate which were developed on SBA medium (Himedia, India). The suspension was refined with swab on Muller-Hinton Agar (Himedia, India) with cefoxitin plate, and afterward brooded at 35°C for 18 to 24 hours and analyzed for proof of development. In vitro antimicrobial weakness testing was done on Muller Hinton Agar by the Kirby-Bauer plate dissemination strategy utilizing chloramphenicol (30ug), ceftriaxone (30 ug), ciprofloxacin (5 ug), clindamycin (10ug), erythromycin (15ug), antibiotic medication (30 ug) and trimethoprim-sulfamethoxazole (25ug). Methicillin affectability/obstruction was tried utilizing 30 µg cefoxitin (Himedia, India). The methicillin-helphless strain of *S.*

aureus ATCC 29213 was utilized.

Collected data were analyzed using the SPSS (version 21) statistical software for Windows. The Chi-square test was used for the analysis of categorical variables between MRSA colonized and un-colonized patients. Participants were classified as MRSA colonized if MRSA was detected from any one of the specimen collection sites. Participants were classified as colonized with methicillin- susceptible *S. aureus* (MSSA) if MSSA was detected and MRSA was not detected. Participants colonized with both MSSA and MRSA were classified as MRSA colonized.

3. Results

One swab from every nostril and one from axilla was taken from every one of the 70 members adding up to an aggregate of 210 swabs. *Staphylococci* were separated from 90 swabs and 33 were Methicillin safe. These segregates were likewise impervious to ceftriaxone 22%, ciprofloxacin 26%, clindamycin 17%, co-trimoxazole 6.2%, erythromycin 29.7%, antibiotic medication 15.4% and chloramphenicol 8.4%. The relationship of different components is appeared in Table 1. Past hospitalization and history of irresistible ailments was related with critical finding ($p < .05$). Craftsmanship (Antiretroviral Therapy) and Pre-ART had no noteworthy connection with MRSA colonization.

4. Discussion

The prevalence of MRSA colonization in HIV positive patients in the present study was 19.8%. Various rates, ranging from 1.6% to 34.8% were previously reported. Such a variation might be due to distinct study groups or unique characteristics of each study.¹³ Our findings do show a significant relationship between MRSA carriage and hospitalizations ($P=0.032$), although approximately half of the isolates were found in individuals who had a history of hospitalization. This is consistent with a report by Popovich et al., Kumar et al.^{4,14} performed a study on HIV patients in India with findings similar to our study and showed that the duration of HIV infection had no effect on the rate of MRSA colonization ($P=0.355$).

5. Conclusion

The following study describes the MRSA colonization in a specific group of immunocompromised individuals they should be further treated with mupirocin and chlorhexidine to remove the carrier state. Regular screening should be done so the dissemination in the community is decreased and also the morbidity caused by this is prevented.

6. Source of Funding

None.

7. Conflict of Interest

None.

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