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Letter to the Editor

Carriage of methicillin resistant *Staphylococcus aureus* and awareness of infection control among health care workers working in intensive care unit of a hospital in Nepal

Dear Editor,

Methicillin resistant *Staphylococcus aureus* (MRSA) is one of the most important hospital acquired pathogens and recently there have been significant worldwide increase in nosocomial infections due to this organism.[1] Colonized healthcare workers are the main reservoirs of MRSA and are responsible for transferring this organism to patients or from one patient to another leading to outbreak. The carriers of MRSA are also at higher risk of getting endogenous infections with this super bug.[2] The treatment options for MRSA are limited due to its resistance to all β-lactam antibiotics resulting in higher treatment cost, prolonged antibiotic administration, and longer hospital stay resulting sometimes into fatal outcomes.[1] Furthermore, health care workers (HCWs) who acquire MRSA in hospital settings may transmit the organism to their household members spreading this multidrug resistant bacteria in the community creating a great public health problem. So, identifying and treating MRSA carriers on a regular basis may be effective in reducing both the incidence of nosocomial infections due to this organism and the risk of endogenous infections in colonized health care workers, thus preventing the spread of this highly drug resistant bacteria to community.[2] Additionally, considering other precautions like hand hygiene can be helpful in controlling MRSA infection in health care settings.

Informed consent was taken from all the participants. With increasing number of MRSA infections diagnosed at the intensive care unit of a hospital in Nepal, the study was conducted to find out the possible source of infection. A total of 100 swab samples (50 hand swabs and 50 internal nares swabs) were collected from 50 HCWs working at the ICU in November 2013. *S. aureus* was isolated and identified according to ASM 2004. Identification of MRSA and antibiotic susceptibility testing of *S. aureus* and other tests were done as described in CSLI 2013. Reference strains *S. aureus* ATCC 25923 and ATCC 43300 were used as negative and positive controls, respectively.[2] Out of the 50 HCWs 92% ($n=46$) were identified as *S. aureus* carriers in nose or hand or both with 58% being MRSA carriers (by cefoxitin disc 30 micrograms). 36% of the participants had *S. aureus* and 16% had MRSA on their hands. Similarly, *S. aureus* was detected in 90% and MRSA in 54% in the nares of HCWs. Internal nares of humans are common site of colonization for *S. aureus* including MRSA.[2]

Different studies have showed the rate of MRSA carriage ranging from 6 to 50% among HCWs, particularly those working in burns and in intensive care units,[3] and up to 57.1% in those working in surgical wards.[4] In accordance with our study, Fadeyi et al. found the MRSA carriage rate of 52.5% either in nose, or hand, or both of HCWs working in ICU of a hospital in Nigeria with nasal carriage (38.9%) higher than hand carriage (25.3%).[5] In our study no strains of *S. aureus* were found to be resistant to vancomycin or linezolid but in the study by Fadeyi et al. one (1.3%) nasal isolate was found to be vancomycin resistant.[5]

To access the level of knowledge about MRSA and infection control measures among HCWs and their adherence to infection control policies, data were collected by using questionnaire that comprised the following categories of questions: (1) basic knowledge about nosocomial infections; (2) significance of MRSA as causative agent of nosocomial infections, its main sources and methods of decolonization of these sources; (3) adherence to hand hygiene and use of personal protective equipment; (4) sterilization of patient's surrounding environment and instruments; (5) waste management; and (6) adherence to infection control policies.

Only 7 (14%) of the HCWs were found to have proper knowledge about the significance of MRSA as the agent of nosocomial infections and methods for preventing nosocomial infections like use of personal protective equipment, adherence to hand hygiene, treatment of MRSA carriers with mupirocin, etc. But only 4 (8%) HCWs were found to follow the infection control policies strictly. It indicates an

abrupt need for training HCWs to improve the level of their knowledge about infection control measures and strict adherence to infection control policies. MRSA carriers were recommended to use mupirocin (2–3 times per day for 5 days) for decolonization.

Conflicts of interest

The authors declare no conflicts of interest.

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Narayan Dutt Pant[a,*], Manisha Sharma[b]

[a] *Department of Microbiology, Grande International Hospital, Dhapasi, Kathmandu, Nepal*

[b] *Department of Microbiology, Kathmandu Medical College, Kathmandu, Nepal*

[*] *Corresponding author*.
E-mail address: ndpant1987@gmail.com (N.D. Pant).

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