

Letter to Editor

Nasal carriage of methicillin-resistant staphylococcus aureus among ICU personnel working at Zahedan University, southeastern Iran

Sir

Methicillin resistant acquired *S. aureus* (MRSA) infection is an important infection in the hospitals worldwide. Nasal colonization with *S. aureus* especially among healthcare personnel plays as a significant role in the increasing prevalence of resistant community acquired *S. aureus* infections (1, 2). Colonized patients and also health personnel are the important sources of *S. aureus* and MRSA in hospitals (2, 3). Methicillin-resistant staphylococcus aureus nasal carriage is a recognized risk factor for subsequent endogenous infections as well as of human to human transmission. On the other hand, the elimination of nasal carriage has been reported to cause reduction in the incidence of *S. aureus* infections (3, 4). The number of infections due to MRSA is high and remain a major risk to patients, especially when they are hospitalized (1-3).

This underlines the need for routine surveillance of MRSA nasal carriage among healthcare personnel especially in ICU in order to prevent severe infections in high risk group of patients (4, 5). In this way, testing for nasal colonization with clinical related bacteria is an uncomplicated approach for estimating the scope of bacterial resistance-pattern in hospital settings not only for monitoring circulating pathogenic bacteria and their transmission routes, but may also allow estimation of the conformance of infection control precautions among healthcare professionals (5).

There are many reports about nasal carriage of MRSA and its prevalence is different according to hospital, non-hospital subjects, population that is on antibiotics, and characteristics of the population under study (2-7). Other factors that can cause variations may be sampling and culture techniques. Studies by Shekholeslami et al. in Rafsanjan, and Nikbakht et al. on the staff of Valiasr hospital in Meshginshahr showed a nasal colonization in Hospital staff of 20% and 45%, respectively (7, 8). The prevalence rate of MRSA in Rafsanjan and Meshginshahr's study was 97% and 16%, respectively. A study from Hamedan by Hashemi et al. reported that 25.2% of 258 students were positive for nasal

carriage of *S. aureus* (9) 47.7% were methicillin-resistant. Most methicillin-resistant strains were isolated from clinical students (87%), and most vancomycin-resistant isolates were found in residents (30.8%). The findings from other researchers gave high multi-drug resistant *S. aureus* in hospital and community associated infections (3-7). We studied a total of 70 personnel working in 3 hospital ICUs affiliated with Zahedan University (southeastern Iran), who had a history of work more than two weeks in these settings, with no antibiotic during last week, no immunosuppressive factors or pregnancy. Our study showed a prevalence of 10% of *S. aureus* in the nostrils of the staff with a low multi-drug resistant *S. aureus* (4.3%) which was lower than the previous findings in this area (10).

The sensitivity pattern of isolated *S. aureus* showing resistance to oxacillin was low (2.8%) and resistance to vancomycin was not noted. Although, we found a relatively low rate of nasal carriage of MRSA in ICU staff, but it is known that methicillin-resistant staphylococcus aureus nasal carriage is a recognized risk factor for subsequent endogenous infections. Therefore, this underlines the need for routine surveillance of MRSA nasal carriage among healthcare personnel especially in ICU staff in order to prevent severe infections in high risk group of patients.

Batool Sharifi-Mood (MD)¹

Maliheh Metanat (MD)^{*1}

Roya Alavi-Naini (MD)¹

Asadollah Shakeri (MD)¹

Zakaria Bameri (MSc)¹

Maryam Imani¹

1. Infectious Diseases & Tropical Medicine Research Center
Zahedan University of Medical Sciences, Boo-Ali Hospital
Zahedan, Iran.

Correspondences: Maliheh Metanat, Infectious Diseases & Tropical Medicine Research Center, Zahedan University of Medical Sciences, Boo-Ali Hospital, Zahedan, Iran.

Email: malihemetanat@yahoo.com
Tel and Fax: 0098 541 3236722

Received: 9 Dec 2012
Revised: 21 Med 2013
Accepted: 5 May 2013

References

1. Kuehnert MJ, Kruszon-Moran D, Hill HA, et al. Prevalence of Staphylococcus aureus Nasal Colonization in the United States. *J Infect Dis* 2006; 193: 172-9.
2. Cohen PR. Community-acquired methicillin-resistant Staphylococcus aureus skin infections: implications for patients and practitioners. *Am J Clin Dermatol* 2007; 8: 259-70.
3. Moellering RC JR. Problems with antimicrobial resistance in gram-positive cocci. *Clin Infect Dis* 1998; 26: 1177-8.
4. Taiwo SS. Methicillin resistance in Staphylococcus aureus: a review of the molecular epidemiology, clinical significance and laboratory detection methods. *West Afr J Med* 2009; 28: 281-90.
5. Onanuga A, Temedie TC. Nasal carriage of multi-drug resistant Staphylococcus aureus in healthy inhabitants of Amassoma in Niger delta region of Nigeria. *Afr Health Sci* 2011; 11: 176-81.
6. Onanuga A, Oyi AR, Olayinka BO, Onaolapo JA. Prevalence of community associated multi-resistant Staphylococcus aureus among healthy women in Abuja, Nigeria. *African J Biotechnol* 2005; 4: 942-5.
7. Zia Shekholeslami N, Rezaeian M, Tashakori M. Determination of the Prevalence of staphylococcus aureus Nasal Carriers and Antibiotic Resistance Pattern in Clinical Wards Staff of Ali- Ebne Abitaleb Hospital, Rafsanjan. *J Rafsanjan Univ Med Sci* 2009; 8: 27-36. [In Persian]
8. Nikbakht M, Hassan nejad S, Rezazadeh B, et al. Antibiotic Resistance Pattern of Isolated Strains of Staphylococcus Aureus from Personnel Nasal Specimens in Meshgin Shahr Valiasr Hospital. *J Ardabil Univ Med Sci* 2009; 9: 80-8. [In Persian]
9. Hashemi SH, Seifrabiei MA, Ahmadi S, Alikhani MY. Frequency of Nasal Carriage of Staphylococcus aureus and Its Antimicrobial Resistance in Hamadan's Medical Students. *Sci J Hamadan Univ Med Sci* 2012; 19: 36-40. [In Persian]
10. Alavi-Naini R, Sanadgol H, Forghani B, Darvishi M. Effect of oral Rifampicin in prophylaxis of Staphylococcus Aureus nasocarriers of hemodialysis patients. *J Army Univ Med Sci Iran* 2007; 4: 1009-15. [In Persian]