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Letters to the Editor

Is Throat Screening Necessary To Detect Methicillin-Resistant *Staphylococcus aureus* Colonization in Patients upon Admission to an Intensive Care Unit?▽

In the September 2006 issue of the *Journal of Clinical Microbiology*, Nilsson and Ripa reported interesting study results about the potential value of throat screening to detect *Staphylococcus aureus* colonization in hospitalized patients and health-care workers (3). In an orthopedic ward, they detected a higher prevalence of pharyngeal carriage than nasal carriage in both patients (40% versus 31%; $P = 0.037$) and personnel (54% versus 36%; $P = 0.023$). In their discussion, the authors advocate performing throat screening for the identification of patients colonized with methicillin-resistant *S. aureus* (MRSA). To test the hypothesis that throat screening may retrieve additional MRSA carriers not detected by routine nasal and perineal screening, we conducted a prospective cohort study including 150 patients admitted to our surgical intensive care unit (ICU) and screened for MRSA carriage upon admission to the ICU. Swabs were performed using a cotton stick moistened with sterile 0.9% saline solution, and samples were collected from the throat, both anterior nares and perineal region. For MRSA isolation and identification, we used previously described conventional methods with enrichment broth (4). From March through May 2005, 13 of 150 patients (8.7%) had MRSA colonization identified upon admission to the ICU (Table 1). Five MRSA carriers identified by nasal and perineal swabs gave MRSA-negative results by throat swabs. Thus, throat screening alone yielded a low sensitivity (62%). Only one patient (a 56-year-old male undergoing cardiac surgery) gave a positive result for throat swabs and negative results for perineal and nasal swabs. The sensitivity and specificity of combined nasal and perineal screening were 92% and 99%, respectively, with an excellent negative likelihood ratio (0.08). We used the likelihood ratio test to determine whether a logistic regression model that included throat screening provided a significantly better fit than did a model limited to nasal and perineal screening alone. In this analysis, the addition of throat screening did not significantly improve the accuracy of detecting MRSA colonization ($P = 0.6$).

Our data suggest that MRSA colonization of the throat without carriage at other body sites is rare in ICU patients. Therefore, the reported findings about throat carriage of methicillin-susceptible *S. aureus* (MSSA) in less severely ill patients and health-care workers may not be entirely applicable to critically ill patients colonized with MRSA. Several reasons may explain the discrepancy between our findings and those reported by Nilsson and Ripa (3). First, our screening may have underestimated the frequency of MRSA throat carriage due to technical reasons. However, the microbiological procedures used have high sensitivities, suggesting that if such a detection bias exists, the magnitude would rather be small (2). Second, the throats of 65 additional patients could not be screened for various reasons. It seems unlikely that including these patients would have changed the diagnostic performance of throat screening. Third, we performed perineal screening, which may detect patients with gastrointestinal MRSA carriage, and increases the yield of nasal screening only (1). Finally, we searched only for MRSA and not for MSSA. It is possible that MSSA strains differ from MRSA strains in their colonization patterns.

TABLE 1. Results for 150 patients screened for MRSA carriage upon admission to the surgical intensive care unit of University of Geneva Hospitals in 2005

Parameter	No. of patients with the following result by throat screening:		Total no. of patients
	Positive	Negative	
No. of patients with the following result by perineal and nose screening			
Positive	7	5	12
Negative	1	137	138
Total no. of patients	8	142	150

Overall, we believe that the study by Nilsson and Ripa is valuable in showing the dynamics of MSSA carriage. However, caution should be applied when generalizing these findings to ICU patients colonized with MRSA. Clearly, further studies are needed to determine the most cost-effective strategies to screen patients for MRSA. This is particularly important in the light of the recent rise in community-acquired MRSA infections, as nasal carriage appears to be less common in this group of patients.

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