Nasal Carriage of Vancomycin-Intermediate Staphylococcus aureus among Intensive Care Unit Staff

Str—Since the first description [1] of vancomycin-intermediate Staphylococcus aureus (VISA) strains, in Japan, methicillin-resistant S. aureus (MRSA) strains with this type of resistance have been observed in many countries [1]. In France, the first VISA strain was isolated in our hospital in 1995 [2]. Since that time, outbreaks of VISA colonization and infection have been reported, especially in French hospitals [3]. During MRSA outbreaks, the colonization of health care workers has been demonstrated [4, 5]. However, the potential role of such MRSA carriage in the initiation of outbreaks is not well established. Because MRSA is known to be highly transmissible in health care settings, it can be hypothesized that VISA can be transmitted in a similar manner. To our knowledge, no study has yet been performed to determine the incidence of nasal carriage of VISA among health care workers during VISA outbreaks. Accordingly, we undertook such a study.

In 2000, 15 (1.5%) of 1015 patients hospitalized in the intensive care unit (ICU) of our institution were colonized or infected with a VISA strain. Eleven of these strains were identified in 80 patients admitted to the ICU during a one-month period. Accordingly, we sought to evaluate the prevalence of carriage of VISA in the ICU staff. Of the 98 persons working in the ICU, 88 (90%) were screened by use of nasal swabs (10 physicians, 5 medical students, 69 nurses, and 4 therapists). The samples were inoculated on brain-heart infusion agar plates containing 2 mg/L of vancomycin and on 5% sheep blood Columbia agar plates. The plates were incubated at 37°C for 48 h. MICs of strains that grew on vancomycin agar plates were determined by performance of the E-test (AB Biodisk), with use of brain-heart infusion agar plates and an inoculum of 2 McFarland.

Seventeen (19.3%) of the 88 persons screened carried a S. aureus strain susceptible to methicillin and vancomycin, 1 person (1.1%) carried an MRSA strain susceptible to vancomycin, and 3 persons (3.4%) carried a VISA strain with low-level resistance to vancomycin (MIC range, 4–6 µg/mL) and teicoplanin (MIC range, 6–16 µg/mL). Colonization prevention strategies were reinforced (i.e., hand washing, use of hydroalcoholic solutions as disinfectants, and isolation of patients infected with VISA). One month later, the 3 persons (1 therapist and 2 nurses) who had been carrying a VISA strain tested negative for VISA. Therefore, after only 1 (0.2%) of 360 patients admitted to the ICU during a 4-month period was colonized with a VISA strain.

As far as we know, this is the first study evaluating nasal carriage of VISA in health care workers. Our findings suggest that, as with MRSA, health care workers can be a reservoir of VISA. As such, they may contribute to the dissemination of VISA strains through hand carriage.

References


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