

An outbreak of methicillin-resistant *Staphylococcus aureus* infection in patients of a pediatric intensive care unit and high carriage rate among health care workers.

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摘要

Abstract

BACKGROUND AND PURPOSE: Methicillin-resistant *Staphylococcus aureus* (MRSA) has been the leading cause of nosocomial infections in many hospitals. To investigate the impact of carriage by health care workers (HCWs) on patient transmission, surveillance culture was performed following an outbreak of MRSA in a pediatric intensive care unit (PICU). **METHODS:** Isolates from 61 HCWs and 10 environmental sites were collected. Pulsed-field gel electrophoresis (PFGE) and antibiogram analysis were performed to determine the clonal relationship between isolates and potential routes of transmission. **RESULTS:** The overall carriage rate of HCWs was 67.2% (41/61) for *S. aureus* and 26.2% (16/61) for MRSA. One MRSA was isolated from the 10 environmental sites sampled. Two major MRSA clusters were identified based on the PFGE patterns. Isolates with indistinguishable PFGE patterns (pulsotype A) were found in all patient isolates from the outbreak, from several HCWs plus the environmental isolate; all were resistant to ciprofloxacin, clindamycin, erythromycin, gentamicin, tetracycline, and trimethoprim-sulfamethoxazole. Interestingly, the isolate from a patient who had prolonged hospitalization in PICU had PFGE patterns (pulsotype B) distinct from the strains involved in the outbreak. This strain was susceptible to ciprofloxacin and trimethoprim-sulfamethoxazole, and was also found in several HCWs. Thus, there appeared to be 2 main MRSA clones circulating in the PICU of our hospital. **CONCLUSIONS:** Person-to-person and environment-to-person (or vice versa) transmissions are documented in this study. Strict hand washing before and after patient contact must be enforced and closely monitored, as it is the principal

preventive measure in containing the spread of MRSA. To prevent the emergence of vancomycin-resistant MRSA and the further transmission of multidrug-resistant organisms, implementation of periodic and routine active surveillance cultures as part of infection control measures may also be evaluated.