Outbreak Linked to Artificial Fingernails (7/04)


This article describes the investigation of an outbreak of extended-spectrum beta-lactamase (ESBL)-producing *Klebsiella pneumoniae* infections in a neonatal intensive care unit. Cultures of the gastrointestinal tracts of patients, the hands of health-care personnel (HCP), and the environment were performed to detect potential reservoirs for ESBL-producing *K. pneumoniae*. Strains of *K. pneumoniae* were typed by pulsed-field gel electrophoresis using XbaI. A case-control study was performed to determine risk factors for acquisition of the outbreak clone (clone A); cases were infants infected or colonized with clone A and controls (3 per case) were infants with negative surveillance cultures. During the study period, 19 case-infants, of whom 13 were detected by surveillance cultures, harbored clone A. The overall attack rate for the outbreak strain was 45%; 9 of 19 infants presented with invasive disease (n=6) or developed invasive disease (n=3) after colonization was detected. Clone A was found on the hands of two HCP, one of whom wore artificial nails, and on the designated stethoscope of a case-infant. **Analysis revealed that length of stay per day and exposure to the health-care worker wearing artificial fingernails were associated with infection or colonization with clone A.** As a result of this investigation, an institution-wide ban on the wearing of artificial nails was implemented and the authors concluded that short, well-groomed, natural nails should be mandatory for HCP with direct patient contact.

DIS Comment: In this study, the acquisition of the outbreak strain was significantly associated with exposure to a nurse wearing artificial nails. This is not the first time that artificial fingernails or extenders have been epidemiologically implicated in health-care-associated infections. Multiple outbreaks involving fungaland bacterial infections in hospital intensive-care units and operating rooms have been reported. Keeping nails short is considered key because the majority of flora on the hands are found under and around the fingernails. Hand carriage of gram-negative organisms has been determined to be greater among wearers of artificial nails than among nonwearers, both before and after handwashing. Fingernails should be short enough to allow dental health-care personnel (DHCP) to thoroughly clean underneath them and prevent glove tears. Sharp nail edges or broken nails are also likely to increase glove failure and long artificial or natural nails can make donning gloves more difficult and can cause gloves to tear more readily.

References