

Medical News

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Staphylococcus aureus Nasal Colonization and Infections in Liver Transplant Recipients

Staphylococcus aureus has emerged as a leading cause of bacterial infections after liver transplantation. Investigators from the University of Pittsburgh conducted a study to determine whether nasal carriage of *S aureus* was a risk factor for *S aureus* infections in liver transplant recipients. Over a 2-year period, 30 consecutive liver transplant recipients were studied. Beginning when the recipients were transplant candidates, nasal cultures were performed at each admission and monthly thereafter until discharge or death. Overall, 67% of the patients were nasal carriers, 70% of the carriers had methicillin-resistant *S aureus* (MRSA), 15% had methicillin-sensitive *S aureus*, and 15% had both MRSA and methicillin-sensitive *S aureus*. Infections were associated significantly with the carrier state; 100% (9/9) of the infected patients were carriers as compared with 50% (11/21) of the noninfected patients ($P=.01$). All infections were a result of MRSA, and 56% (5/9) of the infections were bacteremia. Median time to onset of *S aureus* infection was 16 days after transplant. Pulsed-field gel electrophoresis (with digestion of *S aureus* with *Sma*I restriction enzyme) in seven infected patients demonstrated that the isolates from the anterior nares matched the invasive isolates in all cases. A total of 43% (3/7) of these infected patients shared the same restriction pattern.

MRSA colonization of the anterior nares was a significant predictor of MRSA infections in liver transplant recipients. Infections occurred only in those colonized with MRSA and were a result of the endogenously colonizing *S aureus* strains in all cases.

FROM: Chang FY, Singh N, Gayowski T, Drenning SD, Wagener MM, Marino IR. *Staphylococcus aureus* nasal colonization and association with infections in liver transplant recipients. *Transplantation* 1998;65:1169-1172.

The Role of "Colonization Pressure" in the Spread of VRE

Investigators from the University Hospital Maastricht, The Netherlands, and Cook County Hospital, Chicago, studied the effect of colonization pressure (ie, the proportion of other patients colonized), as well as previously identified risk factors such as compliance with infection control measures and antibiotic use, on acquisition of colonization with vancomycin-resistant enterococci (VRE).

Rectal colonization was studied daily for 19 weeks in

181 consecutive patients who were admitted to a single medical intensive-care unit (ICU). Cox proportional hazards regression model included length of stay in the medical ICU until acquisition of VRE, colonization pressure, personnel compliance with infection control measures (hand washing and glove use), APACHE (Acute Physiology and Chronic Health Evaluation) II scores, and the proportion of days that a patient received vancomycin or third-generation cephalosporins, sucralfate, and enteral feeding. With survival until colonization with VRE as the end point, colonization pressure was the most important variable affecting acquisition of VRE (hazard ratio [HR], 1.032; 95% confidence interval [CI₉₅], 1.012-1.052; $P=.002$). In addition, enteral feeding was associated with acquisition of VRE (HR, 1.009; CI₉₅, 1.000-1.017; $P=.05$), and there was a trend toward association of third-generation cephalosporin use with acquisition (HR, 1.007; CI₉₅, 0.999-1.015; $P=.11$). The effects of enteral feeding and third-generation cephalosporin use were more important when colonization pressure was less than 50%. Once colonization pressure was 50% or higher, these other variables hardly affected acquisition of VRE.

FROM: Bonten MJ, Slaughter S, Ambergen AW, Hayden MK, van Voorhis J, Nathan C, et al. The role of "colonization pressure" in the spread of vancomycin-resistant enterococci: an important infection control variable. *Arch Intern Med* 1998;158:1127-1132.

Additional news items in this issue: International Course in Applied Epidemiology, page 545; Hepatitis GB Virus Infection Among Renal Transplant Patients, page 559; Epidemiology of a Dominant Clonal Strain of VRE at Two Hospitals in Boston, page 564; Nosocomial Postoperative Endophthalmitis, page 569; Antibiotic Prophylaxis in Critically Ill Patients, page 573; Mad Cow Disease From Drinking Water? page 577; El Niño Increases Hantavirus Infections, page 580; Fluoroquinolone-Resistant Neisseria gonorrhoeae, page 589; Clindamycin Restriction Decreases Clostridium difficile-Associated Diarrhea, page 596; Contamination of Sterile Biopsy Forceps in Disinfected Endoscopes, page 559; Anesthetist Transmits Hepatitis C to 217 Patients, page 589; Staphylococcus aureus Nasal Colonization and Infections in Liver Transplant Recipients, page 611; The Role of "Colonization Pressure" in the Spread of VRE, page 611.
