

Medical News

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Methicillin-Resistant *Staphylococcus aureus* Bacteremia: Community-Acquired Versus Healthcare-Associated Strains

Methicillin-resistant *Staphylococcus aureus* (MRSA) infections diagnosed at hospital admission are often referred to as community acquired. This designation may include MRSA strains previously acquired in a healthcare setting (healthcare associated) as well as those that have emerged from community-based *S. aureus* strains. Tacconelli et al. from Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, Massachusetts, conducted a case-control study to further understand the epidemiology of MRSA from the community.

During 1997 to 2002, 254 patients with and without MRSA bacteremia at hospital admission were studied. All patients with MRSA bacteremia during the first 24 hours of hospital admission had had a recent exposure to a healthcare setting: true community-acquired MRSA was not detected. Independent risk factors for healthcare-associated MRSA bacteremia, defined as MRSA bacteremia during the first 24 hours of hospital admission among patients with a recent exposure to a healthcare setting or intervention, included previous MRSA infection or colonization (odds ratio [OR], 17; $P < .001$), cellulitis (OR, 4; $P = .006$), presence of a central venous catheter (OR, 3; $P < .001$), and skin ulcers (OR, 3; $P = .007$).

The authors concluded that MRSA bacteremia diagnosed during the first 24 hours of hospital admission represented healthcare-associated MRSA strains and not true community-acquired strains. The clinical characteristics associated with healthcare-associated MRSA bacteremia can assist clinicians in targeting measures to prevent cross-transmission and may help to streamline empiric vancomycin therapy.

FROM: Tacconelli E, Venkataraman L, De Girolami PC, D'Agata EM. Methicillin-resistant *Staphylococcus aureus* bacteraemia diagnosed at hospital admission: distinguishing between community-acquired versus healthcare-associated strains. *J Antimicrob Chemother* 2004;53:474-479.

Distribution of Multidrug-Resistant Gram-Negative Versus Gram-Positive Bacteria in the Hospital Environment

Lemmen et al. from the Department of Infection Control, University Hospital Aachen, Aachen, Germany,

prospectively studied the difference in detection rates of multidrug-resistant gram-positive and gram-negative bacteria in the inanimate environment of patients harboring these organisms. Up to 20 different locations around 190 patients were surveyed. Fifty-four patients were infected or colonized with methicillin-resistant *Staphylococcus aureus* (MRSA) or vancomycin-resistant enterococci (VRE) and 136 with multidrug-resistant gram-negative bacteria. The environmental detection rate for MRSA or VRE was 24.7% (174 of 705 samples) compared with 4.9% (89 of 1,827 samples) for multidrug-resistant gram-negative bacteria ($P < .001$). Gram-positive bacteria were isolated more frequently than gram-negative bacteria from the hands of patients ($P < .001$) and hospital personnel ($P = .1145$). Environmental contamination did not differ between the intensive care units (ICUs) and the general wards, which the authors believe is noteworthy because the ICUs were routinely disinfected twice a day, whereas the general wards were cleaned just once a day with detergent.

Current guidelines for the prevention of spread of multidrug-resistant bacteria in the hospital setting do not distinguish between gram-positive and gram-negative isolates. The authors believe that their results suggest that the inanimate environment serves as a secondary source for MRSA and VRE, but less so for gram-negative bacteria. Thus, strict contact isolation in a single room with complete barrier precautions is recommended for MRSA or VRE; however, for multidrug-resistant gram-negative bacteria, contact isolation with barrier precautions for close contact but without a single room seems sufficient. This benefits not only the patients but also the hospital by removing some of the strain placed on already overextended resources.

FROM: Lemmen SW, Hafner H, Zolldann D, Stanzel S, Luttkicken R. Distribution of multi-resistant gram-negative versus gram-positive bacteria in the hospital inanimate environment. *J Hosp Infect* 2004;56:191-197.

Enteral Vancomycin to Control Endemicity of Methicillin-Resistant *Staphylococcus aureus* in a Medical-Surgical Intensive Care Unit

de la Cal et al. from the University Hospital of Getafe, Madrid, Spain, conducted a prospective trial to assess the effectiveness and safety of enteral vancomycin in controlling methicillin-resistant *Staphylococcus aureus* (MRSA) in

an endemic setting. During the 49-month period, patients older than 14 years and expected to require ventilation for 3 days or more were enrolled following admission to a medical-surgical intensive care unit (ICU). A total of 799 patients were included in the trial. Period 1 (N = 140 patients), July 1, 1996, to April 30, 1997, was observational. During period 2 (N = 258 patients), May 1, 1997, to September 30, 1998, surveillance samples were obtained. MRSA carriers were isolated and received enteral vancomycin. During period 3 (N = 400 patients), October 1, 1998, to July 31, 2000, all patients receiving ventilation were given selective digestive decontamination with polymyxin E, tobramycin, amphotericin B, and vancomycin and 4 days of intravenous cefotaxime.

The primary endpoints were (1) incidence of patients with diagnostic samples positive for MRSA acquired in the ICU, (2) incidence of patients with van-

comycin-resistant enterococci (VRE) in surveillance or diagnostic samples, and (3) incidence of patients with samples positive for *S. aureus* with intermediate sensitivity to glycopeptides. The incidences of patients with MRSA in diagnostic samples were 31%, 14%, and 2% in periods 1, 2, and 3, respectively ($P < .001$). There was a VRE outbreak involving 13 patients during period 3. VRE disappeared with no change in policy. Glycopeptide intermediate-resistant *S. aureus* was not detected. These findings support the effectiveness and safety of enteral vancomycin in the control of MRSA.

FROM: de la Cal MA, Cerda E, van Saene HK, et al. Effectiveness and safety of enteral vancomycin to control endemicity of methicillin-resistant *Staphylococcus aureus* in a medical/surgical intensive care unit. *J Hosp Infect* 2004; 56:175-183.