ICUs Seeing Less Central Line–Associated MRSA

BY MARY ANN MOON

The incidence of methicillin-resistant *Staphylococcus aureus* bloodstream infections related to the placement of central lines has declined in recent years in all major types of adult ICUs and has remained stable in nonneonatal pediatric ICUs, according to a report.

These findings suggest that prevention efforts are succeeding for this subgroup of MRSA patients, said Dr. Deron C. Burton and associates at the Centers for Disease Control and Prevention.

To characterize trends in MRSA incidence, the researchers assessed surveillance data reported to the CDC by 1,684 ICUs in 43 states from 1997 through 2007. In all, 33,587 central line–associated bloodstream infections were reported, of which 2,498 (7%) were MRSA.

The incidence of central line–associated bloodstream MRSA infections rose from 1997 to 2001, but then declined through 2007, resulting in an overall estimated decline of approximately 50% over the entire study period, the investigators said (JAMA 2009;301:727-36).

The incidence declined in recent years in all six major subtypes of adult ICUs: surgical; medical; combined medical-surgical without a major teaching affiliation; combined medical-surgical with a major teaching affiliation; cardiothoracic; and coronary units.

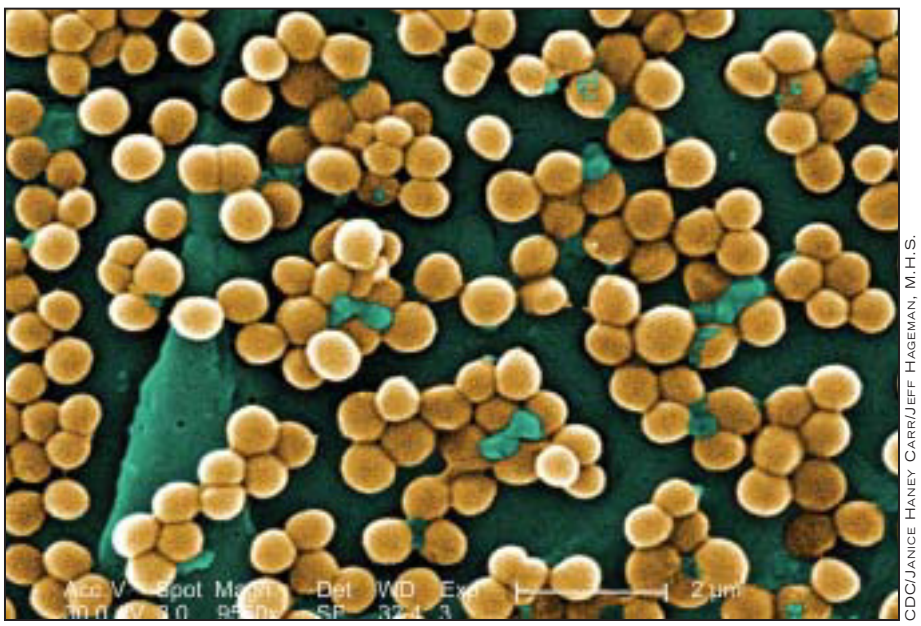
For nonneonatal pediatric ICUs, the incidence of central line–associated bloodstream MRSA infections remained stable from 1997 through 2007. These findings stand "in sharp contrast to trends in percent MRSA" (a different measure, representing pooled mean percent resistance), which can be "misleading."

"The percent MRSA trend [erroneously] suggests a steady worsening" of the MRSA central line–associated bloodstream infections during the study period, Dr. Burton and colleagues noted.

In an editorial, Dr. Michael William Climo of Hunter Holmes McGuire Veterans Affairs Medical Center, Richmond, Va., said that the decline in this specific subset of MRSA infections occurred against the backdrop of an increase in overall MRSA infections.

It is likely that this reduction was "related to a range of interventions that have been implemented during the last decade, including better hand hygiene practices, adoption of standardized line insertion and care practices, proper barrier precautions, improved catheter technology, and shorter periods of indwelling catheter use in patients," Dr. Climo said (JAMA 2009;301:772-3).

The report offers "encouraging news," commented Kathy Warye, CEO of the Association for Professionals in Infection Control and Epidemiology. The findings show that health care–associated infections "can be prevented in a very vulnerable group of patients when institutions consistently implement evidence-based prevention strategies," Ms. Warye said in a statement. Noting that 67% of MRSA cases occur outside the ICU, she urged further action. ■



CDC/Janice Haney Carr/Jeff Hageman, M.H.S.

Central line–associated bloodstream MRSA infections declined approximately 50% in 1997-2007. (Above, scanning electron micrograph magnified 9560x.)

Treatment Pathway Shortens Length of Stay for Pneumonia

BY KERRI WACHTER

WASHINGTON — A clinical pathway involving early mobilization and an early switch from intravenous to oral antibiotics reduced the length of stay for patients with community-acquired pneumonia by more than 2 days, in a randomized study of 401 patients.

The median length of stay was significantly shorter for patients randomized to the clinical pathway, compared with those randomized to standard care—95 hours vs. 150 hours, Dr. Jordi Carratalà said at the jointly held annual Interscience Conference on Antimicrobial Agents and Chemotherapy and the annual meeting of the Infectious Diseases Society of America.

The use of the clinical pathway "was effective in reducing the duration of intravenous antibiotic therapy and length of stay without compromising patient outcomes," said Dr. Carratalà of the infectious disease service at the Hospital Universitari de Bellvitge, Barcelona.

The first step of the clinical pathway was early mobilization. This involved getting the patient walking or at least sitting up for at least 20 minutes during the first 24 hours of hospitalization, with progressive periods of walking/sitting on successive days.

Then patients were switched from intravenous to oral antibiotics based on objective criteria. They were switched to oral antibiotics when they had a temperature no greater than 100° F (at two measurements at least 3 hours apart), showed improvement or resolution of symptoms, were able to maintain oral intake, and were hemodynamically stable; any comorbid conditions also had to be stable.

After patients were mobilized, on oral antibiotics, and stable, they were discharged.

A total of 401 immunocompetent adults diagnosed with community-acquired pneumonia (CAP) were randomized: 200 to conventional treatment and 201 to the clinical pathway. Patients with shock, aspiration pneumonia, or empyema were excluded. The patients in the two groups were similar in terms of demographic and baseline characteristics.

Streptococcus pneumoniae was the most commonly identified organism in both groups (85 patients in the intervention group and 79 in the control group). The causative organism was unknown in many cases in both groups as well (85 patients in the intervention group and 92 patients in the control group). Other identified organisms included *Haemophilus influenzae* and *Legionella pneumophila*.

The median duration of intravenous antibiotic therapy was also significantly shorter in the intervention group, compared with the controls (48 hours vs. 96 hours). A significantly lower percentage of the intervention group had adverse drug reactions, compared with the controls (4.5% vs. 16%). There were no differences between the two groups in terms of readmission rates or overall mortality.

"Switching from intravenous to oral therapy as soon as patients are clinically stable can reduce length of stay and lower the associated costs," Dr. Carratalà said. However, the length of intravenous antibiotic use for the treatment of CAP varies widely, which prompted the researchers to undertake the trial. ■

Telavancin Effective for MRSA, MSSA Pneumonia

BY MICHELE G. SULLIVAN

NASHVILLE, TENN. — The investigational antibiotic telavancin was equally effective against both methicillin-resistant and methicillin-susceptible *Staphylococcus aureus* in patients with hospital-acquired pneumonia, Dr. G. Ralph Corey wrote in a poster presented at the annual congress of the Society of Critical Care Medicine.

Telavancin effected high cure rates across a range of minimum inhibitory concentrations, "suggesting that higher minimum inhibitory concentration rates or resistance to beta-lactams did not affect response to telavancin," wrote Dr. Corey of Duke University Medical Center, Durham, N.C.

Dr. Corey and his colleagues presented a subanalysis of two phase III randomized clinical trials, Comparison of Telavancin and Vancomycin for Hospital-Acquired Pneumonia Due to Methicillin-Resistant *Staphylococcus Aureus* (ATTAIN) 1 and ATTAIN 2. The studies assigned 1,532 patients with hospital-acquired pneumonia to either telavancin (10 mg/kg intravenously every 24 hours) or vancomycin standard treatment for 7-21 days.

Dr. Corey's analysis focused on 243 patients in the telavancin arm who were microbiologically evaluable. The patients' mean age was 61 years, and 18% had an Acute Physiology and Chronic Health Evaluation (APACHE) II score of 20 or higher.

The researchers examined clinical cure rates at three minimum inhibitory concentration (MIC) values: 0.25 mcg/mL or less, 0.5 mcg/mL, and 1 mcg/mL. Overall, the clinical cure rate exceeded 80% in patients infected with either methicillin-resistant *S. aureus* (MRSA) or methicillin-susceptible *S. aureus* (MSSA).

For patients with MRSA, the cure rate was 82% at the lowest MIC, 91% at 0.5 mcg/mL, and 100% at the highest MIC. For patients with MSSA, the clinical cure rate was 88% at the lowest MIC and 91% at 0.5 mcg/mL. There were no data for the highest MIC.

In the clinically evaluable population from ATTAIN 1 and ATTAIN 2 combined, the clinical cure rate with telavancin treatment was 83%, compared with 81% for vancomycin.

The analysis, and the ATTAIN studies, were sponsored by Astellas Pharma Inc. and Theravance Inc. Dr. Corey was the primary investigator on both ATTAIN trials. ■

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