

MRSA Linked to Higher Failure Rates in Diabetic Foot Infections

BY DOUG BRUNK
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SAN FRANCISCO — The isolation of methicillin-resistant *Staphylococcus aureus*, either alone or as part of a polymicrobial infection, was associated with treatment failure in 35% of patients with a diabetic foot infection, Dr. Matthew E. Falagas reported during a poster session at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

The finding comes from an analysis of 15 randomized, controlled trials that compared the use of different antibiotics for treating foot infections in diabetic patients.

The analysis showed that “a considerable proportion of patients with diabetes who have infection in their foot would not be treated effectively with current [antimicrobial] management,” Dr. Falagas of the Alfa Institute of Biomedical Sciences in Athens, Greece, said in an interview. “As a matter of fact, about one-fourth of all patients fail to be cured with the current antimicrobial regimens and treatment.”

He and his associates found that different regimens of appropriate antibiotics—including penicillins, carbapenems, cephalosporins, and fluoro-



Treatment failure occurred in 35% of patients such as this one with an infection caused by MRSA, vs. 23% with other infections.

quinolones—were associated with similar treatment failures.

However, in the 68 patients whose infections were caused by methicillin-resistant *Staphylococcus aureus* (MRSA) alone or as part of a polymicrobial infection, treatment failure was 35%, compared with 23% in the 1,522 patients whose infections were caused by different bacteria.

In patients with infections caused by MRSA, the use of linezolid was not associated with a significantly lower failure rate, compared with other antibiotics (32% versus 37%, respectively).

The researchers also ob-

served no significant differences in overall treatment failure when they compared patients who had osteomyelitis with those who did not (27% versus 23%, respectively).

The treatment failures seen in the study were not a matter of patient compliance “because most of these patients were treated in the hospital with [intravenous] antimicrobial agents,” said Dr. Falagas, who is also with the department of medicine at Tufts University, Boston.

He added that, overall, patients who took carbapenems had fewer treatment failures, a finding he did not expect. ■

Nasal MRSA Seen in Up to 7% at Hospital Admission

BY TIMOTHY F. KIRN
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SAN FRANCISCO — At hospital admission, 5%-7% of patients are colonized with methicillin-resistant *Staphylococcus aureus*, according to investigators at Evanston Northwestern Healthcare, the first hospital group in the United States to screen patients routinely for nasal carriage of the resistant bacteria.

It was not surprising that older patients, sicker patients, and patients on dialysis had the highest likelihoods of MRSA colonization, according to a case-control analysis using the data, Dr. Ari Robicsek said at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

The prevalence of nasal carriage was 5% for patients in their 40s. Prevalence steadily increased with age to about 9% among patients in their 70s and peaked at 19% in patients 90 years or older, said Dr. Robicsek, the hospital epidemiologist for Evanston Northwestern Healthcare, which has three hospitals in the suburbs northwest of Chicago.

Over 24,000 patients have been screened by Dr. Robicsek's program, which began in August 2005.

The polymerase chain reac-

tion (PCR) testing used to evaluate nasal carriage has been shown to have a sensitivity of 100% and a specificity of 98%, he said. The rates account for the variation in prevalence, considered to be 7% before and 5% after correcting for the specificity of the testing.

The association between nasal carriage of MRSA and being a sicker patient at admission was evident in the case-control analysis, which considered the number of ICD-9 codes a patient had on admission. The risk of being a MRSA carrier increased about 8% for each additional ICD-9 code.

Among adults who were admitted with a diagnosis of septicemia, the prevalence was 20%, Dr. Robicsek said.

Dr. Robicsek also found that MRSA carriage is difficult to eradicate. Fully 50% of the patients who had previously had a positive result on a nasal test or a clinical culture were carriers on readmission, compared with 4% of patients who had recently been tested or cultured and found to be negative.

Furthermore, patients who had had a prior history of a positive MRSA test or infection, but had tested negative on their most recent test prior to admission, still had a 30% likelihood of being MRSA carriers on their readmission. ■

MRSA Is Most Common Cause of Skin Infections in Many EDs

BY MARY ANN MOON
Contributing Writer

Methicillin-resistant *Staphylococcus aureus* is now the most common identifiable cause of skin and soft-tissue infection seen in patients presenting to emergency departments in many U.S. cities.

Clinicians now should reconsider standard empirical antibiotic therapy in regions where methicillin-resistant *Staphylococcus aureus* (MRSA) is prevalent, and perhaps switch to drugs that provide MRSA coverage. And health care workers should take precautions such as using gowns and gloves when treating any patient with purulent skin or soft-tissue infection, according to Dr. Gregory J. Moran of the departments of emergency medicine and infectious diseases at Olive View-UCLA Medical Center, Sylmar, Calif., and his associates.

Since data concerning the prevalence of MRSA skin and soft-tissue infections have been scarce, Dr. Moran and his associates investigated the issue among 422 adults presenting to university-affiliated emergency departments in August 2004, in 11

cities in geographically diverse regions throughout the country. The median patient age was 39 years (range 18-79 years), and 62% of the subjects were men. Approximately half of the group was black, one-fourth was white, 22% were Hispanic, and the rest belonged to other racial groups.

The infections involved the upper extremities (29%), lower extremities (27%), torso (17%), perineum (14%), or head and neck (13%). They were classified as abscesses in 81% of patients, infected wounds in 11%, and cellulitis with purulent exudates in 8%. *S. aureus* was isolated in 320 patients, and 249 (78%) of these were MRSA isolates. “MRSA was the most common identifiable cause of skin and soft-tissue infections in 10 of the 11 emergency departments,” and the prevalence ranged from 15% to 74%, the researchers said (N. Engl. J. Med. 2006;355:666-74).

MRSA was isolated from 61% of abscesses, 53% of purulent wounds, and

47% of cellulitis cases, and 99% of the strains were community acquired rather than health care related. This is consistent with reports of dramatic rises in community-associated MRSA (CA-MRSA) in the past few years, the investigators said.

‘This finding suggests a need to reconsider ... antimicrobial choices for skin and soft-tissue infections in areas where MRSA is prevalent.’

“Although more than 80% of patients with skin and soft-tissue infections associated with MRSA in this study received empirical antimicrobial therapy for their infections, the infecting isolate was resistant to the agent prescribed for

57% of these patients. This finding suggests a need to reconsider empirical antimicrobial choices for skin and soft-tissue infections in areas where MRSA is prevalent in the community,” they noted.

Of the MRSA isolates tested for drug susceptibility, 100% were susceptible to trimethoprim-sulfamethoxazole and rifampin, 95% were susceptible to clindamycin, 92% to tetracycline, 60% to fluoroquinolones, and 6% to erythromycin.

Even though most patients with MRSA

abscesses were treated with β -lactam agents such as cephalexin and dicloxacillin, which are ineffective against MRSA isolates, there were no significant differences in outcomes between them and the patients whose isolates were susceptible to the drug they received.

The patients who received inappropriate antibiotics probably were cured by the drainage of the abscess and other wound care they received along with the drugs, suggesting that “most simple skin abscesses, even when caused by MRSA, can be cured with adequate drainage alone,” Dr. Moran and his associates said.

“The susceptibility of a given pathogen to prescribed antimicrobial agents may be more likely to affect the outcome among patients with cellulitis or purulent wounds. Unfortunately, there were insufficient numbers of these patients with follow-up information in our study to assess this relationship,” they added.

Patients with MRSA infection were more likely than were those with other bacterial infections to report that they believed their lesions resulted from spider bites, perhaps because these MRSA strains cause unusually painful lesions. ■