

# Denver: MRSA Linked To Necrotizing Fasciitis

BY DIANA MAHONEY  
New England Bureau

TORONTO — Early, empiric antimicrobial therapy for possible necrotizing fasciitis should include coverage for methicillin-resistant *Staphylococcus aureus* in regions of the United States where the bacteria are endemic, according to Dr. Lisa S. Young of the University of Colorado Health Sciences Center, Denver.

Although the severe soft tissue infection continues to be rare, “community-acquired MRSA is on the rise and clinicians need to be aware of the potential association [with necrotizing fasciitis], especially in areas with high or increasing rates of community-acquired MRSA,” Dr. Young said at the annual meeting of the Infectious Diseases Society of America.

In the wake of a 2005 report linking community-acquired MRSA to 14 cases of necrotizing fasciitis in the Los Angeles area, Dr. Young and her colleagues retrospectively evaluated the prevalence of MRSA in patients treated for necrotizing fasciitis over a 2-year period at the Denver Health Medical Center, where community-acquired MRSA accounts for more than half of the community *S. aureus* clinical isolates.

The investigators reviewed the pathologic records and diagnostic codes of patients treated at the medical center for necrotizing fasciitis between January 2004 and February 2006 and determined that 5 of the 30 cases diagnosed were caused by

MRSA. All five cases involved the extremities, and in all five cases, the patients’ MRSA isolates were susceptible within 12 hours to the empiric antibiotics that were given. The patients required a median of six surgeries (range 2-7) to remove infected tissue. “None of them needed an amputation, and all five survived,” Dr. Young said.

Three of the five patients, whose ages ranged from 28 to 55 years, experienced “a spider bite lesion” 2 or 3 days prior to admission. One patient was an alcoholic, one was a diabetic, and the remaining three were healthy.

Pathology results showed that the MRSA isolates had the USA300 DNA banding pattern. This strain of community-acquired MRSA produces the Panton Valentine leukocidin cytotoxin,

which has been associated with serious necrotizing infections, Dr. Young explained. The increasing prevalence in recent years of these isolates, which differ from other *S. aureus* clones, might be a result of antibiotic overuse, she noted.

With respect to clinical management of suspected necrotizing fasciitis, “in areas of high prevalence [of MRSA], do not wait for cultures before beginning empiric treatment with antibiotic therapy that is effective against MRSA,” Dr. Young advised. The organism is highly aggressive and virulent, so treatment delays or the use of ineffective therapies “could lead to severe tissue damage or amputation,” she said.

Dr. Young reported having no financial disclosures related to her presentation. ■

**‘In areas of high prevalence [of MRSA], do not wait for cultures before beginning empiric treatment with antibiotic therapy that is effective against MRSA.’**

## Study Pinpoints Clinical Risk Factors For Vancomycin Failure in MRSA

SAN FRANCISCO — Independent clinical risk factors for vancomycin failure in patients with methicillin-resistant *Staphylococcus aureus* infection were infection of the lung or pleura and, to a lesser extent, infection of the bone, results from a small case-control study showed.

“Vancomycin doesn’t penetrate the pleura and the lungs as well as newer generations of drugs for MRSA,” Dr. Roger Mar-Tang said in an interview during a poster session at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy. “A consideration may be to use a different agent if you suspect MRSA infection in the lung or pleura.”

He and his associates at the University of California, Davis Medical Center in Sacramento studied 55 cases of MRSA infection that were not successfully treated with vancomycin between July 1, 2003, and June 30, 2005; 75 MRSA patients treated successfully in that period served as controls.

Vancomycin failure was defined as patients who received at least 5 days of ther-

apy and met one of three criteria: They had repeat positive MRSA cultures, showed continued or worsening signs or symptoms of infection, or died after 5 days of therapy for the MRSA infection.

Univariate analysis showed that the clinical risk factors for vancomycin failure were renal insufficiency or failure (affecting 44% of cases vs. 27% of controls), history of myocardial infarction (24% vs. 11% among controls), MRSA infection of the lung or pleura (53% vs. 19% among controls), and MRSA infection of the bone (9% vs. 1% among controls). Multivariate analysis showed that the only independent clinical risk factors for vancomycin failure were MRSA infection of the lung or pleura (odds ratio of 19.5) and MRSA infection of the bone (odds ratio of 8.22).

Dr. Mar-Tang conducted the study during his internal medicine residency at the University of California, Davis Medical Center. The conference was sponsored by the American Society for Microbiology.

—Doug Brunk

## MRSA Outcomes Improved by Empiric Treatment Algorithm

BY DOUG BRUNK  
San Diego Bureau

SAN FRANCISCO — An empiric antibiotic treatment algorithm for community-acquired methicillin-resistant *Staphylococcus aureus* skin and soft tissue infections improved clinical outcomes, according to the results of a small study.

“We recommend treating people with skin and soft tissue infections with Bactrim and Keflex or clindamycin in addition to early incision and drainage,” Dr. Erin A. Chuck said in an interview during a poster session at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

She and her colleagues at Alameda County Medical Center in Oakland, Calif., reviewed the charts of 50 consecutive patients treated in the ED for laboratory-confirmed community-acquired methicillin-resistant *Staphylococcus aureus* (MRSA) skin and soft tissue infections and were sent home the same day between April 2005 and January 2006. They categorized treatment as either conforming to or not conforming to the algorithm, which classified infections as follows:

► Type 1: Uncomplicated cellulitis or impetigo. The recommended treatment was cephalexin (Keflex) plus trimethoprim-sulfamethoxazole (TMP/SMX).

► Type 2: Uncomplicated abscesses. The recommended treatment was surgery,

but if antibiotics were used the researchers recommended doxycycline or TMP/SMX alone.

► Type 3: Complicated abscesses, such as those with surrounding cellulitis, infections in immunocompromised hosts, or infected wounds. The recommended treatment was to consider surgery, to administer oral Keflex plus TMP/SMX or clindamycin alone, or to administer intravenous clindamycin plus vancomycin or Zosyn (piperacillin sodium and tazobactam sodium) plus vancomycin.

Of the 50 patients, 37 had abscesses that were drained at the first visit, said Dr. Chuck, who conducted the study during her residency at the medical center.

Of the 29 patients treated according to the algorithm, only 1 (3%) was considered a clinical failure, vs. 13 (62%) who were not treated according to the algorithm.

Of the 36 patients treated with antibiotics that were active in vitro against their MRSA isolate, 4 (11%) were considered clinical failures. Of the 9 patients treated with antibiotics that were inactive against their cultured MRSA, 7 (78%) were considered clinical failures. No patient treated according to the algorithm was subsequently hospitalized, vs. two not treated according to the algorithm, she said at the meeting, sponsored by the American Society for Microbiology. Dr. Chuck is now a hospitalist at John Muir Hospital in Walnut Creek, Calif. ■

## Acinetobacter Antibiotic Resistance Climbs, Mainly in Northeast

BY TIMOTHY F. KIRN  
Sacramento Bureau

SAN FRANCISCO — Antibiotic resistance increased rapidly in nosocomial *Acinetobacter* infections from 1994 to 2004, growing almost fourfold, according to a report from the Centers for Disease Control and Prevention.

During that 10-year period, 8,537 cases of *Acinetobacter* infection were reported to the National Nosocomial Infection Surveillance System, of which 3,601 had susceptibility testing results.

The testing results indicate that the number of isolates that were susceptible to only one of four classes of antibiotics rose from 14% to 26%, and the number of isolates resistant to all four classes increased from 4% to 15%, Roberta Carey, Ph.D., reported in a poster presentation at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

The classes were  $\beta$ -lactams, fluoroquinolones, aminoglycosides, and carbapenems. Resistance to a  $\beta$ -lactam antibiotic rose from 39% of isolates to 66% during the 10-year period. For fluoroquinolones, resistance rose from 50% to 73% of isolates; for aminoglycosides, from 19% to 31%; and for carbapenems, from 9% to 39%.

The review also indicates that a greater

percentage of the resistant infections came from hospitals in the Northeast than from hospitals elsewhere, and that they came from larger hospitals.

Only 24% of the hospitals reporting to the surveillance system were in the Northeast, but 74% of the isolates resistant to all four antibiotic classes came from that region, said Dr. Carey, of the CDC’s Division of Health Care Quality Promotion. Only 12% of resistant isolates came from the West.

Less than 1% of the *Acinetobacter* infections came from hospitals with fewer than 200 beds, while 55% came from hospitals with more than 500 beds. In fact, 99% of isolates resistant to all four classes came from large teaching hospitals, although 83% of the hospitals that report to the system are teaching hospitals.

A preponderance of the *Acinetobacter* infections came from hospitals in the northern New Jersey and New York City areas, and many were associated with severe burns, Dr. Carey said in an interview after the meeting, which was sponsored by the American Society for Microbiology.

Isolates that were nonsusceptible to all four classes of antibiotics caused pneumonia in 46% of cases, bloodstream infections in 13%, urinary tract infections in 11%, surgical site infections in 10%, and other infections in 20%. ■