Community-Acquired Variety Tops MRSA Worries

BY KERRI WACHTER
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WASHINGTON — As many as 2.3 million people in the United States carry methicillin-resistant *Staphylococcus aureus,* Dr. Daniel B. Jernigan reported at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

The estimate comes from a recent study in which nasal swab samples were collected from 9,622 people (at least 1 year of age) as part of the National Health and Nutrition Examination Survey in 2001-2002.

CA-MRSA cases accounted for 17% of all MRSA infections in three large cities. The majority of these (about 77%) are skin and soft tissue infections.

Roughly one-third (32%) were nasally colonized with *S. aureus* and 0.8% were nasally colonized with methicillin-resistant *S. aureus* (MRSA).

Based on those numbers, the population prevalence of all strains of *S. aureus* is 89.4 million (J. Infect. Dis. 2006; 193:172-9).

"MRSA colonization was associated with being over the age of 60 and also with being female," said Dr. Jernigan, a medical epidemiologist with the National Center for Infectious Diseases.

Concern about community-acquired MRSA (CA-MRSA) continues to grow. (See box at right.) Unlike MRSA acquired in health care facilities, CA-MRSA affects healthy individuals, is not associated with traditional risk factors for health care–acquired MRSA, and varies in prevalence by race, age, and geography. In particular, there is an elevated prevalence of MRSA among African Americans and among children.

Population surveillance of bacterial infections in the United States is performed through the Active Bacterial Core surveillance program, which is a collaboration between the Centers for Disease Control and Prevention and several state health departments and universities participating in the Emerging Infections Program Network.

According to this program, CA-MRSA incidence in the United States ranged from 18 to 26 cases per 100,000 people per year in 2001-2002 (N. Engl. J. Med. 2005;352:1436-44). "I believe that is a conservative estimate," Dr. Jernigan said at the meeting sponsored by the American Society for Microbiology.

Overall confirmed or probable CA-MRSA cases accounted for 17% of all MRSA infections in three large cities.

"The majority of infections due to these community-associated cases are skin and soft tissue infections—about 77%," he said.

In an unpublished analysis of data from the National Ambulatory Medical Care Survey and the National Hospital Ambulatory Medical Care Survey, researchers at the National Center for Health Statistics identified skin conditions likely to be caused by *S. aureus* infection based on ICD-9 codes.

The investigators estimated that 4,000 outpatient visits per 100,000 people per year are due to such skin and soft tissue infections.

In another study, researchers in California cultured each culturable pus lesion in a Los Angeles area emergency department during 1 month (Emerg. Infect. Dis. 2005;11:928-30). "What they found was that 59% of culturable pus seen in the emergency department was due to MRSA, and of those the majority was community-associated MRSA strains," Dr. Jernigan said.

CA-MRSA outbreaks have been reported among athletes, inmates, soldiers, children in schools and day-care centers, Native Americans/Alaskan Natives, men who have sex with other men, and Hurricane Katrina evacuees.

Transmission factors that have been associated with outbreaks of CA-MRSA include crowding, frequent skin-to-skin contact, compromised skin, contaminated surfaces, shared items, uncleanliness, and antimicrobial use.

Two recent unpublished studies from the CDC's Epidemic Intelligence Service have documented CA-MRSA transmission among people getting tattoos from unlicensed tattooists and among crystal meth smokers, although not among IV drug users, Dr. Jernigan said.

The CDC's CA-MRSA prevention strategy includes steps to prevent infection, effectively diagnose and treat infections, use antimicrobials wisely, and prevent transmission.

"So rather than just a focused area on judicious antimicrobial use, we think—for this particular pathogen, which has colonize status, infective status, susceptible status, and possibly the environment as sources of infection—that you have to have a multipronged approach," he said.

Experts at a CDC-sponsored meeting on CA-MRSA recommended these clinical steps for combating CA-MRSA:

- ▶ Increase awareness about CA-MRSA.
- ▶ Use local data to develop treatment strategies.
- ▶ Collect diagnostic specimens.
- ▶ Provide adequate follow-up.
- ▶ Target treatment with alternative antibiotics.

The experts also recommended these steps to better control outbreaks of CA-MRSA:

- ▶ Enhance surveillance during an outbreak by looking for skin infections.
- ▶ Target empiric therapy to the outbreak strains.
- ▶ Provide education about wound care and wound containment.
- ▶ Promote enhanced personal hygiene and encourage limiting shared use of items.
- ▶ Consider excluding patients from certain activities that involve skin-to-skin contact, such as athletic events.
- ▶ Achieve and maintain a clean environment. ■

MRSA Burden in San Francisco Hospitals Shifts to Community-Onset Phenotypes

The burden of methicillin-resistant *Staphylococcus aureus* disease appears to be shifting recently from health care–acquired strains to community-acquired strains in San Francisco, Dr. Henry F. Chambers III told attendees at the annual Interscience Conference on Antimicrobial Agents and Chemotherapy.

The burden of MRSA disease at three hospitals in San Francisco has shifted toward community onset. "About 50%-60% of MRSA disease in San Francisco is now community-acquired," said Dr. Chambers, chief of the division of infectious diseases at San Francisco General Hospital.

Those numbers are based on efforts to collect every MRSA isolate that is unique over a 1-year period in every hospital in San Francisco. A total of nine hospitals (90%) participated from 2004 to 2005.

At San Francisco General Hospital alone, more than 1,000 unique isolates were collected in that time.

"There is one MRSA isolate for every 250 persons per year in San Francisco at the current time—now, that's a lot of burden of MRSA disease," Dr. Chambers said.

He also presented data from the Integrated Soft Tissue Infection Service clinic, which performs as many as 2,000 incision and drainage procedures and other surgical procedures in the outpatient setting. For many years, the drug of choice there has been cephalexin.

To evaluate the role of antimicrobials in skin and soft tissue infections in patients who were treated with incision and drainage, Dr. Chambers and his colleagues conducted a randomized, double-blind, placebo-controlled trial.

Patients at the clinic were enrolled if they were 18 years of age or older and had an abscess requiring incision and drainage that was severe enough that the treating physician thought antibiotics were indicated.

Patients were fairly young, with an average age of 26 years in the group that received cephalexin and 30 years in the placebo group.

Roughly two-thirds of each group had abscesses that went down to subcutaneous tissue.

The predominant isolate identified was *S. aureus* alone, found in 69% of those in the cephalexin group and 67% of those in the placebo group. Of the *S. aureus* isolates, 88% and 90% were MRSA in the cephalexin and placebo groups, respectively.

"You could see the typical pattern of resistance for a community-onset phenotype," Dr. Chambers said.

The cure rate was 87% in the cephalexin group and 92% in the placebo group, a difference that was not statistically significant.

"The cure rates for the placebo suggest that incision and drainage is sufficient for treatment of skin and soft tissue infections with abscess," Dr. Chambers said.

The results of this trial are consistent with the findings of several other studies.

"If we can define patients who do not need antibiotic therapy and actually live with that and act as though they don't need antibiotic therapy, we'll be a whole lot better off with this problem [of drug resistance] in general," Dr. Chambers said.

Antibiotic Resistance Doesn't Raise UTI Risk in Long-Term Care Patients

WASHINGTON — Antibiotic resistance did not increase the number of nosocomial urinary tract infections among elderly patients in a long-term care facility, Dr. Walter Zingg reported in a poster presented at the Interscience Conference on Antimicrobial Agents and Chemotherapy.

Dr. Zingg, of the University Children's Hospital, and his colleagues at University Hospital, Zürich, tested urine samples for *Escherichia coli* to determine the impact of resistant *E. coli* on the development and outcome of UTIs in long-term care facility residents.

Prevalence studies were conducted from June 2002 to May 2004. The 80 patients with *E. coli* (mean age 86 years) and 91 controls (mean age 85 years) were observed for an average of 278 days and 365 days, respectively. Overall, 96% of the *E. coli* cases showed reduced susceptibility against combination amoxicillin/clavulanic acid, 55% showed reduced susceptibility against trimethoprim/sulfamethoxazole, 41% showed reduced susceptibility against norfloxacin, and 10% showed reduced susceptibility against ciprofloxacin.

Surprisingly, the level of resistance did not result in more frequent nosocomial infections, the investigators found. The incidence density (the estimated rate of occurrence of infection) was 3.3 per 1,000 days among patients with *E. coli*, compared with 3.2 per 1,000 days among controls.

The meeting was sponsored by the American Society for Microbiology.

—Heidi Splete