Community-Acquired Strains Cause Most MRSA

BY BRUCE JANCIN

VIENNA — Community-acquired MRSA as a proportion of all MRSA infections tripled in a recent 10-year period in the United States, according to a large national study.

This rise in community-acquired MRSA (CA-MRSA) has occurred across all age groups, in all types of *Staphylococcus aureus* infections, all geographic regions of the country, and in both inpatient and outpatient settings, Dr. Robertino M. Mera reported at the annual European Congress of Clinical Microbiology and Infectious Diseases.

The proportion of CA-MRSA within all MRSA infections jumped from 22% in 1998 to 66% in 2007.

DR. MERA

At the hospital level, the incidence of CA-MRSA has increased faster than hospital-acquired MRSA. The rate of hospital discharges in the United States for hospital-acquired MRSA infections has gone from 3.2 per 1,000 discharges in 1998 to 4.8 per 1,000 in 2007, a modest albeit statistically significant increase. Meanwhile, the rate of discharges for CA-MRSA has shot up eightfold, from 0.4 per 1,000 to 3.3 per 1,000.

The biggest changes in CA-MRSA trends, however, have occurred in children and in skin and soft tissue infections, Dr. Mera noted.

Although CA-MRSA accounted for less than 5% of all *S. aureus* infections in U.S. children under age 15 years in 1998, the proportion jumped to 45% a decade later. By 2007, 82% of all MRSA infections in U.S. children under age 15 years had the CA-MRSA phenotype.

"This is quite remarkably high," observed Dr. Mera of GlaxoSmithKline, Durham, N.C.

Moreover, 86% of all MRSA isolates obtained from abscesses in 2007 were CA-MRSA, as were 75% of those from wounds. CA-MRSA has replaced hospital-acquired MRSA as the source of most skin and soft tissue hospital infections.

In contrast, by 2007 CA-MRSA accounted for 30% of all MRSA sputum samples and 44% of blood samples.

Dr. Mera presented an analysis of 824,307 *S. aureus* isolates obtained from across the United States in 1998-2007. The analysis utilized the Surveillance Network (TSN) database and National Hospital Discharge Survey data.

In 1998, MRSA accounted for 33% of all *S. aureus* infections. This proportion climbed steadily during the following decade, reaching 54% in 2007. Meanwhile, the proportion of CA-MRSA within all MRSA infections jumped from 22% in 1998 to 66% in 2007.

In 1998 there were large age-group differences in the proportion of *S. aureus* infections due to MRSA. Among patients older than 65 the figure was 47%, while in children younger than 15 years it was just 13%. By 2007, however, MRSA accounted for fully 47% of all *S. aureus* infections in children and 57% in the elderly. Among patients age 16-44 years, the proportion of *S. aureus* infections due to MRSA climbed from 23% to 55% during the decade.

In 1998, CA-MRSA accounted for a mere 7.3% of all *S. aureus* isolates. By 2007, this figure rose to 35.6%. This increase was achieved by CA-MRSA replacing hospital-acquired MRSA strains, and to an even greater extent by replacing methicillin-susceptible *S. aureus*, which accounted for 67% of all *S. aureus* infections in 1998 but only 46% a decade later. ■

Disclosures: *This study was supported by GlaxoSmithKline.*

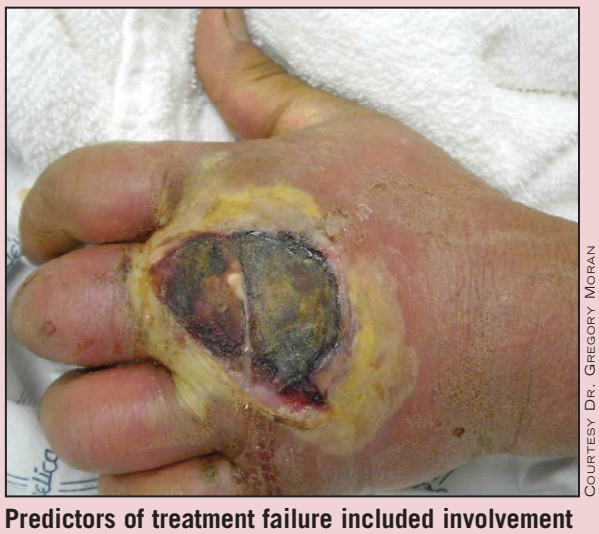
Risk Factors Double Likelihood of Treatment Failure in Diabetics With MRSA

Predictors of clinical failure in the treatment of complicated skin and skin structure infections in diabetic patients due to methicillin-resistant *Staphylococcus aureus* include involvement of a body area other than the lower extremities, according to an analysis combining the results of three large, prospective, randomized, phase III/IV clinical trials.

The other independent predictors of treatment failure in diabetic patients were comorbid peripheral vascular disease and polymicrobial pathogens, Dr. Benjamin A. Lipsky reported at the annual European Congress of Clinical Microbiology and Infectious Diseases.

The presence of these risk factors, each of which roughly doubled the likelihood of treatment failure, should serve to alert physicians to an elevated risk of poor outcome, added Dr. Lipsky of the Veterans Affairs Puget Sound Health Care System and the University of Washington, Seattle.

He reported on 845 patients with complicated skin and skin structure infections due to MRSA who participated in three open-label clinical trials involving randomization to treatment with linezolid or vancomycin. A total of 34% of participants were diabetic.



COURTESY DR. GREGORY MORAN

Predictors of treatment failure included involvement of a body area other than the lower extremities and comorbid peripheral vascular disease.

This is believed to be the largest-ever analysis of predictors of clinical failure in patients with skin infections caused by MRSA, he said.

Clinical failure was defined as persistence or progression of clinical signs and symptoms of active infection at the study's end, which came variously 6-28 days after the last dose of study medication.

The presence of comorbid peripheral vascular disease was associated with a 2.3-fold increased risk of clinical treatment failure in the diabetic patients. It's likely that the vascular disease interferes with delivery of antimicrobial agents to the site of infection, Dr. Lipsky observed.

In nondiabetic patients, two independent predictors of clinical treatment failure were identified: vancomycin therapy and the presence of polymicrobial pathogens. Each was associated with a 2.2-fold increased risk of treatment failure.

Numerous other variables were scrutinized as potential predictors of clinical treatment failure but failed to achieve significance.

This study was sponsored by Pfizer. Dr. Lipsky serves as a consultant to the company.

Feds Investigating Adverse Effects of Pandemic Flu Vaccine

BY MICHELE G. SULLIVAN

VITALS

Major Finding: Three of the nation's 13 vaccine safety monitoring systems have picked up weak signs between the H1N1 pandemic flu vaccine and Bell's palsy, Guillain-Barre Syndrome, and thrombocytopenia/idiopathic thrombocytopenia purpura.

Data Source: A data review by the H1N1 Vaccine Safety Risk Assessment Working Group.

Disclosures: None.

The federal government will step up its search for possible adverse reactions to the pandemic A(H1N1) flu vaccine, particularly looking for any cases of Guillain-Barré syndrome, Bell's palsy, and thrombocytopenia that might be linked to the vaccine, according to a report issued by the Department of Health and Human Services.

The National Vaccine Information Center recommended the expanded safety monitoring because 3 of the nation's 13 vaccine safety monitoring systems have picked up weak signals of a possible interaction between the pandemic flu shot and the disorders. The decision came after a meeting of the H1N1 Vaccine Safety Risk Assessment Working Group (VSRAWG).

The Vaccine Safety Datalink program is the largest of the three systems that found a possible link; it contains information on 1.5 million pandemic flu immunizations. This system picked up a weak signal for an association with Bell's palsy.

The Defense Medical Surveillance System, with information on 1.3 million pandemic flu immunizations, and the Veterans Affairs signal detection database, with almost 300,000 vaccination records, both showed a weak signal for thrombocytopenia and idiopathic thrombocytopenia purpura (ITP).

The Indian Health Service, with information on 2.2 million immunizations, showed a weak signal for both Bell's palsy and the blood disorders.

In systems that linked the vaccine and thrombocytopenia/ITP, "the cases are being reviewed to see if the diagnoses are evaluated," the report noted.

The Guillain-Barre Syndrome enhanced surveillance database observed a "potential signal" for that disorder. The database monitors a population of 45 million, but no information was available on how many pandemic flu vaccinations had been examined to determine the possible link.

The nation's primary—and largest—system, however, has picked up no worrisome safety signals. The Vaccine Adverse Event Reporting System (VAERS) has captured information on more than 126 million pandemic flu vaccinations. It found that adverse events after the shots were no different than those occurring after seasonal flu vaccine. ■