CA-MRSA skin infections: Coming to a patient near you

from CSAC, the Clinical and Scientific Affairs Council of the AAPA

Who should read this? PAs who provide outpatient treatment of skin and soft tissue infections (SSTIs).

What's new? Community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) SSTIs have become epidemic and are now the most common type of SSTI in most outpatient settings.

Invasive CA-MRSA infections among healthy, community-dwelling adults and children have also emerged as a significant infectious disease. Historically, virtually all MRSA infections had been classified as nosocomial, or hospital-associated (HA-MRSA). In 2002, however, US sentinel hospital data revealed that a significant number of MRSA SSTIs—between 8% and 20%—were community-associated.[1] CA-MRSA infections have distinct clinical, epidemiologic, and bacterial characteristics. These differences have significant implications for treatment, especially in the outpatient setting.

Why is this important? CA-MRSA infections commonly do not resolve—and may worsen—if they are treated with traditional antibiotics.

The term *CA-MRSA* is used to refer to any MRSA infection with community onset in a person without established risk factors for HA-MRSA; these risk factors include recent hospitalization or surgery, the presence of invasive medical devices, dialysis, or residence in a long-term care facility. The term *CA-MRSA* has also been used to describe MRSA strains with genotypes and antimicrobial susceptibility considered typical of CA-MRSA.[2]

CA-MRSA and HA-MRSA appear to cause similar types of infections. CA-MRSA SSTIs can run the gamut from mild, superficial infections to deep infections requiring hospital admission for incision and drainage (I&D) and/or for treatment with parenteral antibiotics.[3] CA-MRSA appears to be separate and distinct from HA-MRSA, with CA-MRSA seeming to be resistant to fewer classes and different classes of antimicrobials.[4] Most CA-MRSA infections are minor SSTIs, but severe invasive disease has been reported.[5,6]

Where is this happening? CA-MRSA SSTIs are epidemic virtually everywhere and in every community.

One of the first pockets of high prevalence was documented in 2002 in an urban California emergency department (ED), where 61 of 79 consecutive staphylococcal SSTIs (77%) were due to CA-MRSA.[3] Researchers in a large Atlanta public hospital in 2003 identified 389 cases of *S aureus* SSTIs; 72% of these infections were caused by CA-MRSA.[7] In another prospective study of 422 patients with SSTIs presenting to 11 urban EDs throughout the United States in 2004, *S aureus* was isolated in 321 cases (76%); 81% of these patients had abscesses, 11% had infected wounds, and 8% had cellulitis.[8] While the prevalence of CA-MRSA varied widely, CA-MRSA was the single most common cause of infection in 10 of 11 EDs.

Populations at high risk for CA-MRSA infection are emerging. In an urban HIV clinic in Dallas, during a

Take-home points

- In all settings, CA-MRSA is rapidly becoming—or has already become—the single most common cause of SSTIs.
- Whenever possible, culture and sensitivity testing should be ordered for SSTIs.
- Abscesses caused by CA-MRSA are treatable with I&D, regardless of the antibiotic prescribed.
- In all settings, CA-MRSA remains sensitive to common, inexpensive oral antibiotics, most notably TMP-SMX.
- Consider inpatient treatment and observation for all high-risk persons, including pregnant women and HIV-positive patients.

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6-month period cultures were performed on 44 consecutive patients with SSTIs and CA-MRSA infection was diagnosed in 41 (93%).[9] The incidence of CA-MRSA also appears to be rising dramatically in pregnant and postpartum women. Only two cases in this group were reported in all of 2000, while 17 were reported in the first six months of 2004—13 (76%) in HIV-positive women.[10] Ninety-six percent of these HIV-positive women required inpatient therapy.

Equally alarming are reports suggesting that person-to-person transmission of CA-MRSA infection can occur with relative ease—among athletes playing on contact sports teams, for example.[11,12] While no formal data as yet support this ease of person-to-person transmission, the existence of multiple case reports implies that it is a significant concern, especially paired with the increase in prevalence.

Why is this happening? The reasons are not yet clear, but of the US CA-MRSA isolates available for specialized testing, 99% were from a single clone known as USA 300.[7]

What else is important to know? Virtually all isolates of CA-MRSA remain sensitive to trimethoprim-sulfamethoxazole (100%), rifampin (100%), doxycycline (100%), and clindamycin (95%), although inducible resistance to clindamycin has been reported.[13] This sensitivity permits continued treatment in the outpatient setting.

I&D, not antibiotics, is the definitive treatment for abscesses. High-risk populations—especially HIV-positive patients—warrant serious consideration of inpatient treatment (see the algorithm). Both linezolid and vancomycin are effective when first-line therapies fail, particularly in high-risk patients or in invasive infections. □

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ALGORITHM

Management of CA-MRSA SSTIs