Editorial

Making Sense of Community-Acquired Methicillin-Resistant *Staphylococcus aureus*

Dirk M. Elston, MD

In this month's issue of *Cutis*®, Kil et al[1,2] focus on the epidemiology, pathogenesis, and cutaneous manifestations of methicillin-resistant *Staphylococcus aureus* (MRSA). Community strains of *S aureus* have become widespread in hospitalized patients as well as community settings. While some recent information about MRSA infections is comforting, other emerging data are cause for concern. There are several key points to the community-acquired MRSA (CAMRSA) discussion.

Key Point 1: CAMRSA strains are now a common cause of abscesses, joint infections, and sepsis among hospitalized patients. Similarly, hospital-type strains have followed patients home and are common wound colonists in older patients.

The good news about CAMRSA is that the vast majority of cutaneous MRSA infections continue to present as furunculosis or spontaneous abscess with or without accompanying cellulitis. While there are patients that present with life-threatening manifestations, it is rare for patients to progress from simple skin infections to more serious systemic disease if they are properly managed.

Key Point 2: Adequate drainage is the key to management of CAMRSA abscesses. A punch or cruciate incision is more likely to remain open and ensure adequate drainage. It is generally best not to pack MRSA abscesses, as purulent material can reaccumulate behind packing.

Abscesses respond to drainage. This appears no less true for MRSA abscesses than for abscesses caused by other organisms, and antibiotics may be unnecessary after adequate surgical drainage of uncomplicated skin and soft tissue abscesses caused by CAMRSA.[3-6] The key is early intervention with adequate drainage. A cruciate incision or punch biopsy is less likely to seal over and is preferred. A curette is useful to ensure that all loculated purulent material has been evacuated. Packing generally is best avoided, as purulent material can accumulate behind the packing material. Drains and irrigation may be helpful to prevent reaccumulation of purulent material.

Key Point 3: Those patients who need an antibiotic usually respond well to inexpensive drugs such as trimethoprim-sulfamethoxazole or a tetracycline.

With proper surgical management, the prognosis is excellent for the vast majority of patients with cutaneous MRSA infections. For those patients who require antibiotic therapy, the majority can be managed cost-effectively with sulfa or tetracycline. Clindamycin remains useful in many areas of the country, though inducible resistance is emerging. Reports of good outcomes with clindamycin in areas with high rates of inducible resistance are in all likelihood a reflection of adequate surgical drainage of the lesions.

Key Point 4: Multidrug-resistant CAMRSA strains are emerging. The routine use of antibiotics in livestock appears to be contributing to the development of resistance.

The bad news about CAMRSA is that it is more virulent than methicillin-susceptible *S aureus* strains, as evidenced by worse outcomes and a higher cost of care.[7] Multidrug-resistant strains of MRSA are emerging and the routine use of antibiotics on farms may be contributing to the emergence of resistant organisms.[8] Animal colonization on farms leads to human colonization and has been traced to life-threatening infection in the intensive care unit.[9] Some studies have found that retail meat, milk, and cheese may culture positive for MRSA.[10,11]

From the Departments of Dermatology and Laboratory Medicine, Geisinger Medical Center, Danville, Pennsylvania.
The author reports no conflict of interest.

Key Point 5: CAMRSA may cause life-threatening manifestations, including necrotizing pneumonitis, empyema, pulmonary embolus, glomerulonephritis, and hemophagocytic syndrome.

CAMRSA pneumonitis, empyema, and osteomyelitis are emerging as serious infections that tend to affect children. They may be fatal and may be complicated by deep venous thrombosis, pulmonary embolus, rapidly progressive glomerulonephritis, and hemophagocytic syndrome.[12,13]

Comment

Mupirocin resistance is on the rise, and there is evidence of plasmid transmission as well as clonal spread.[14,15] In most cases of CAMRSA, resistance is coded by SCC*mec* (staphylococcal cassette chromosome *mec*) type IV, a small gene cassette that codes only for methicillin resistance. As a result, most CAMRSA strains remain sensitive to oral antibiotics such as sulfa and tetracycline. Some MRSA isolates now carry SCC*mec* type V, which codes for resistance to multiple classes of antibiotics.[16] Clindamycin resistance also is increasing in most areas of the country, including both constitutive and inducible clindamycin resistance.[17] The inducible macrolide-lincosamide-streptogramin B phenotype is identified by genetic probes or the D-test. Multidrug-resistant Panton-Valentine leukocidin–positive CAMRSA strains have been identified with a transmissible multidrug-resistant plasmid.[18] Resistance to topical agents such as chlorhexidine and triclosan also is emerging.

Stay tuned for the next installments by Drs. Kil, Heymann, and Weinberg, in which they will address resistance and treatment issues.

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