State of Alaska Epidemiology Bulletin

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Bulletin No. 26 September 5, 2003

Methicillin-Resistant *Staphylococcus aureus* Furunculosis Outbreak, Southwestern Alaska, 2000

Background

In August 2000, healthcare providers at a hospital in southwestern Alaska reported an increase in furuncles caused by methicillin-resistant *Staphylococcus aureus* (MRSA) in patients with no history of hospital exposure. MRSA infections in hospital settings are well-described, but reports of community-onset MRSA infections are increasing. Furunculosis outbreaks have been described previously in rural Alaska and have been associated with traditional steambath use.[1]

Investigation

In August 2000, a team from the Centers for Disease Control and Prevention, Arctic Investigations Program (AIP), reviewed the hospital's medical and laboratory records to determine the extent of the outbreak.[2] During 1999-2000, the proportion of clinic visits for skin infections (furuncles or cellulitis) increased from 1% to 3.2% of monthly outpatient visits and the number of MRSA isolates from soft tissue cultures increased from 5 to 56 per month (Figure 1).

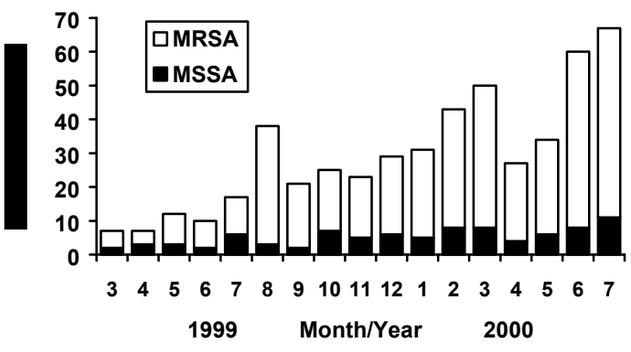
From May 1 to August 10, 2000, 240 *S. aureus* isolates were cultured at the hospital's laboratory and 180 (75%) of these isolates were MRSA. Of the 180 MRSA isolates, 151 (84%) were cultured from skin infections and only 3 (1.7%) were from normally sterile sites. Over 85% of all *S. aureus* skin infections were MRSA. Patients with MRSA skin infections were more likely to have received antibiotics than patients with methicillin-sensitive *S. aureus* skin infections in the 6 months before their culture was performed.

Environmental Assessment

Because of the prior association of furuncles or boils with steambaths, a steambath assessment was conducted in one community. Steambaths were cultured for MRSA and two common cleaning agents were compared for their ability to reduce bacterial colonization on steambath seating areas.

MRSA was isolated from seating areas in 17% of the assessed steambaths. MRSA was as common in the outer dressing areas as in the steambaths themselves. Scrubbing the seating areas with a dilute bleach solution was compared to scrubbing with a pine distillate, Hexol®. Bleach reduced bacterial colonization more effectively than Hexol® but did not completely eliminate bacteria from wood surfaces.

Figure 1. MRSA and methicillin-susceptible *S. aureus* (MSSA) isolates from soft tissue infections, March 1999–July 2000.



Discussion

This furunculosis outbreak was concerning because the majority of infections were caused by MRSA and most patients had no previous hospital exposure, confirming that MRSA is an important community pathogen in southwestern Alaska. This has important treatment implications: beta-lactam antibiotics (e.g., cephalexin, dicloxacillin), the current first-line therapy for outpatient *S. aureus* infections, are ineffective for MRSA. Most MRSA isolates in this outbreak were susceptible to multiple other antibiotics, such as trimethoprim-sulfa, fluoroquinolones, and aminoglycosides.

Antibiotic use was a risk factor for MRSA skin infections in this outbreak. Encouraging appropriate antibiotic use may help reduce antibiotic pressure and prevent selection of drug-resistant bacteria. MRSA was isolated from steambath seating areas; cleaning seating areas with a dilute bleach solution may help reduce MRSA colonization.

Summary

A large outbreak of MRSA skin infections began in southwestern Alaska in May 1999. The majority of *S. aureus* skin infections were caused by MRSA. All MRSA infections were susceptible to other antibiotics. Prior antibiotic use may be a risk factor for MRSA skin infections and steambaths may play a role in disease transmission. Dilute bleach solution appeared to be more effective than pine cleaner to reduce bacterial colonization in affected steambaths.

Recommendations

1. Furuncle treatment guidelines were established at the hospital, emphasizing local care, e.g., hot packs and drainage procedures, and antibiotic use only for serious infections, e.g., cellulitis $\geq$10 cm or systemic symptoms. For localized infections requiring antibiotics, trimethoprim-sulfa is recommended as first-line therapy. Vancomycin should be reserved for serious infectious, e.g., endocarditis or osteomyelitis.
2. All steambath seating areas should be cleaned after each use with a dilute bleach solution (1 cup bleach to 1 gallon water). Clean seating barriers, e.g., cardboard, towel, mat, should be used in steambaths and re-usable seating barriers cleaned with a dilute bleach solution after each use.
3. Steambath owners should consider limiting the number of different persons using their steambath.
4. Persons with furuncles should not take steambaths until the infection has completely stopped draining.
5. Apparent clusters of furunculosis in Alaska should be reported to the Section of Epidemiology at 907-269-8000. Molecular methods are available at the Alaska State Public Health Laboratory to type isolates.

References

1. Landen MG, McCumber BJ, Asay ED, et al. Outbreak of boils in an Alaskan village: a case-control study. *West J Med* 2000;172:235-9.
2. Baggett HC, Hennessy TW, Leman R, et al. An outbreak of community-onset methicillin-resistant *Staphylococcus aureus* skin infections in southwestern Alaska. *Infect Control Hosp Epidemiol* 2003;24(6):397-402.

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