

Severe community-acquired infection caused by methicillin-resistant *Staphylococcus aureus* in Saudi Arabian children

To the Editor

Great thanks are due to Bukhari and Al-Otaibi¹ for addressing their interesting case series on the severe community-acquired infection caused by methicillin-resistant *Staphylococcus aureus* in Saudi Arabian children. I have the following 5 comments.

First, the first United States of America report² on the community-acquired methicillin-resistant *Staphylococcus aureus* (CA-MRSA) infection in the late 1990s has initiated over the past years a cascade of similar studies all over the world because of the following: First, it is associated with a novel genetic profile and phenotype; it is remarkably virulent, and capable of rapidly spreading within communities; it is correlated with no identifiable predisposing factors; and it is a recalcitrant infection with narrow antimicrobial susceptibilities that renders it prone to impose a grave prognosis, particularly if it is lately diagnosed and improperly treated.³ Second, it presents a large burden to the afflicted families. Third, it is associated with an increased healthcare costs. The CA-MRSA infection imposes puzzling situations in the clinical setting as the clinical, and epidemiological risk factors in persons with community-acquired *Staphylococcus aureus* infection cannot reliably distinguish between MRSA and methicillin-susceptible *Staphylococcus aureus* infection.⁴

Second, Bukhari and Al-Otaibi¹ stated that CA-MRSA infection was confirmed in 28.6% of the studied patients; 6% of them had invasive disease. Actually, no anecdotal studies addressing the prevalence of pediatric CA-MRSA infection in Saudi Arabia are present for comparative purpose. However, Al-Tawfiq's study⁵ has shown that during 1999-2003 in a Saudi Arabian General Hospital, MRSA constituted 6% of all *Staphylococcus aureus* isolates; the proportion had increased from 2% in 1999, to 9.7% in 2002, to 8% in 2003. Of all MRSA isolates, 62% represented community-acquired infection. I presume that the actual magnitude of pediatric CA-MRSA infection in Saudi Arabia is still substantial and I anticipate it is going to be increasingly reported.

Third, the diagnosis of CA-MRSA infection in the case series studied by Bukhari and Al-Otaibi¹ was made by demonstrating the causative agent in the culture of various clinical specimens. Since MRSA culturing involves a 2-3 days delay before the final results are available, rapid detection techniques (commonly referred to as "MRSA rapid tests") using polymerase chain reaction (PCR) methods and, most recently, rapid

culturing methods are indicated. The implementation of rapid tests reduces the time of detection of MRSA from 48-72 to 2-5 hours. Clinical evaluation data have shown that MRSA could thus be detected with the sensitivity 100%, specificity 97.4%, positive predictive value 98.5%, and negative predictive value 100%.⁶ Specificity, however, is sometimes impaired due to false positive PCR signals occurring in mixed flora specimens. In order to rule out any false positive PCR results, a culture screen must always be carried out simultaneously.⁷

Fourth, various antibiotics were applied in the case series studied by Bukhari, and Al-Otaibi¹ and some of them were empirically used, including, clindamycin, vancomycin, ceftriaxone, cloxacillin, and cefazolin. These options seem somewhat similar to that used worldwide.⁸ It has been suggested that when the prevalence of CA-MRSA infection within a community eclipses 10-15%, empiric therapeutic use of non-beta-lactam antibiotics with in vitro activity against CA-MRSA be initiated, particularly in skin and skin structure infections.² This necessitates a change in the empiric therapy of infections suspected to be caused by MRSA considering the local susceptibility patterns, site of the infection, significant risk factors for CA-MRSA infection in the community, and individual patient factors.

Fifth, I do agree with Bukhari and Al-Otaibi¹ that increasing awareness of pediatricians regarding CA-MRSA infection is essential. In addition, active national surveillance to determine the database of this infection in terms of various epidemiologic, clinical, diagnostic, therapeutic, and preventive profiles is pertinent to successfully combat the foreseeable increment in the CA-MRSA infection, particularly in children.

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Reply from the Author

Our thanks to Prof. Al-Mendalawi for his valuable comments. We actually agree with all the points he raised, that CA-MRSA rate is increasing according to the reports from the Kingdom of Saudi Arabia. This, as he mentioned, necessitates using empirical therapy with activity against CA-MRSA. However, we think that more studies on CA-MRSA applying molecular methods are needed.

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