way. Therefore, the facts described above suggest that the region responsible for the extended substrate spectrum is the R2 loop (residues 289–310 according to the amino acid numbering system of P99; Figure 1).

Another issue that we wish to highlight from our reading of the work of Mammeri et al. is a commonly made oversimplification that a decrease in $K_m$ indicates an increased affinity of a substrate for an enzyme. Because an increased $k_2/k_3$ ratio (not only decreased $K_m$ value) also yields an increased affinity, the $K_m$ value is a complex constant that does not simply reflect the binding affinity, especially when the deacylation step (related to $k_2$ and $k_3$) is rate-limiting.

Funding

The work carried out on CMY-10 was funded in part by grants from the National Institute of Health (NIH) of KCDC in Republic of Korea, BioGreen 21 Program (Z0070501034003) of Rural Development Administration in Republic of Korea and the Driving Force Project for the Next Generation of Gyeonggi Provincial Government in Republic of Korea.

Transparency declarations

None to declare.

References


Journal of Antimicrobial Chemotherapy
doi:10.1093/jac/dkn064
Advance Access publication 13 February 2008

Extension of the hydrolysis spectrum of AmpC $\beta$-lactamase of Escherichia coli due to amino acid insertion in the H-10 helix—authors’ response

Hedi Mammeri1, Laurent Poirel2 and Patrice Nordmann2*

Letters to the Editor

1Service de Bactériologie-Hygiène, Centre Hospitalier Universitaire d’Amiens, Hôpital, Nord, 2 Place Victor Pauchet, 80080 Amiens, France 2Service de Bactériologie-Virologie, Hôpital de Bicêtre, Assistance Publique/Hôpitaux de Paris, Faculté de Médecine Paris-Sud, Université Paris Sud, 94275 K.-Bicêtre, France

Keywords: E. coli, cephalosporinases, enzymatic constants

*Corresponding author. Tel: +33-1-45-21-36-32; Fax: +33-1-45-21-63-40; E-mail: nordmann.patrice@bct.ap-hop-paris.fr

Sir,

We fully agree on the comments on the structure of those peculiar cephalosporinases by Sohn et al. In addition, it is well known that a $K_m$ value is a simplification for an affinity constant. However, detailed enzymatic constants such as the $k_2/k_3$ ratio are reported in specialized journals only. The $K_m$ and $k_{cat}$ values remain the most reported constants that are used for the comparison of $\beta$-lactamase properties.

Transparency declarations

None to declare.

Reference


Journal of Antimicrobial Chemotherapy
doi:10.1093/jac/dkn061
Advance Access publication 19 February 2008

Comment on: Community-associated MRSA (CA-MRSA): an emerging pathogen in infective endocarditis

Hung-Chin Tsai1,2*, Yao-Shen Chen1,3, Susan Shin-Jung Lee1,2 and Yung-Ching Liu1,2

1Section of Infectious Diseases, Department of Medicine, Kaohsiung Veterans General Hospital, Kaohsiung 813, Taiwan 2National Yang-Ming University, Taipei, Taiwan 3Institute of Environmental Education, National Kaohsiung Normal University, Kaohsiung, Taiwan

Keywords: methicillin-resistant Staphylococcus aureus, definitions, S. aureus

*Correspondence address. Section of Infectious Diseases and Department of Medicine, Kaohsiung Veterans General Hospital, 386 Ta-Chung 1st Road, Kaohsiung 813, Taiwan. Tel: +886-7-3468299; Fax: +886-7-3468292; E-mail: hctsai1011@yahoo.com.tw
Sirs,

Although community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) have distinct microbiological, epidemiological and molecular characteristics different from those of healthcare-associated MRSA (HA-MRSA), currently, there are no validated definitions for CA-MRSA. We read with interest the newly proposed definitions published by Millar et al. In their article, comparing the differences between CA-MRSA and HA-MRSA, the authors also reviewed all published cases of CA-MRSA endocarditis to date.

There are several errors in the article by Millar et al. First, of the 23 patients with infective endocarditis due to CA-MRSA, 2 of the 7 cases in the Haque series (Cases 3 and 7) were in fact healthcare-associated, although all 7 cases were Panton–Valentine leucocidin (PVL)-positive and carried the SCCmec type IV gene. In Taiwan, the most common SCCmec types in CA-MRSA infections were types IV and V₄. However, SCCmec type IV can also be hospital-acquired and accounted for 40% to 43% of MRSA infections in two studies. This suggests that SCCmec type IV alone is not sufficient to indicate community acquisition and should not be the only criterion for CA-MRSA.

Secondly, in the table comparing clinical characteristics and outcome for patients with methicillin-susceptible *S. aureus* (MSSA) native valve endocarditis with those of MRSA and CA-MRSA native valve endocarditis (Table 3), it is unclear why only 81% of the CA-MRSA was community-acquired. What then is the definition of CA-MRSA if it does not satisfy the criteria of ‘community acquisition’?

We concur with the authors that emergence of CA-MRSA infection impacts significantly on the outcome and management of infective endocarditis. However, a comprehensive definition of CA-MRSA is still currently lacking, reflecting the complexity of this pathogen in its clinical, epidemiological and microbiological characteristics. We caution that a combination of characteristics, rather than a single one (such as SCCmec type IV genotype), should be used to define CA-MRSA.

### Transparency declarations

None to declare.

### References


### Letters to the Editor

**Community-associated MRSA (CA-MRSA): an emerging pathogen in infective endocarditis—authors’ response**

B. Cherie Millar¹, Bernard D. Prendergast² and John E. Moore¹*

¹Northern Ireland Public Health Laboratory, Department of Bacteriology, Belfast City Hospital, Lisburn Road, Belfast BT9 7AD, Northern Ireland, UK
²Department of Cardiology, John Radcliffe Hospital, Headley Way, Oxford OX3 9DU, UK

Keywords: *Staphylococcus aureus*, CDC criteria, hospital-acquired MRSA

*Corresponding author. Tel: +44-28-9026-3554; Fax: +44-28-9026-3991; E-mail: jemoore@niphl.dnet.co.uk

Sir,

We read with interest the comments made by Tsai et al., in response to our recently published Leading article. These comments primarily serve to reiterate the importance of definitions for community-associated MRSA (CA-MRSA), regardless of whether such infections have been acquired in the community or healthcare setting. Such definitions are applicable to all CA-MRSA infections, not only those resulting in infective endocarditis (IE). Indeed, the comments made by these authors do not directly address any issues per se relating to IE, but how CA-MRSA is defined within the 23 reviewed cases of IE.

As reiterated by Tsai et al., there is no unique characteristic (for example, SCCmec type IV) that is attributed to all CA-MRSA isolates, and in order to help define CA-MRSA, we have previously proposed definitions based on a combination of characteristics. Furthermore, there appears to be confusion with regard to the terminologies ‘associated’ and ‘acquired’. These terms are not synonymous or interchangeable. ‘Associated’ represents where the isolate originated, whereas ‘acquired’ identifies where the patient acquired the isolate.

CA-MRSA is predominately acquired within the community setting; however, there are increasing reports of CA-MRSA infections acquired within the healthcare setting, whereby a community strain has entered into the healthcare environment and has subsequently been transmitted nosocomially, similar to the transmission of healthcare-associated MRSA (HA-MRSA). As such, in Table 3 of our article, although the isolates had characteristics of CA-MRSA, in four cases, the infection was acquired within a healthcare setting.