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Did CA-MRSA Bacteremia Exist in Taiwanese Patients With End-Stage Renal Disease?

To the Editor—In a recently published study, Lin et al.[1] attempted to distinguish between the clinical characteristics of patients infected with community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) and those of patients infected with healthcare-associated (HA-MRSA). The study population consisted of patients who were receiving peritoneal dialysis or hemodialysis. This fact contradicts the present definition for CA-MRSA, because MRSA detected in persons with healthcare-associated risk factors, such as dialysis, within 1 year before onset of MRSA infection is not considered to be community acquired.[2]

One of the other criteria adopted by Lin and colleagues for identifying CA-MRSA and HA-MRSA was staphylococcal cassette chromosome (SCC) *mec* typing. They identified MRSA strains with SCCmec types IV or V as community acquired and MRSA strains with SCCmec types II or III as healthcare acquired. The designation of the source of MRSA acquisition by means of SCCmec typing may be misleading. In 2007, researchers at National Taiwan University Hospital (Taipei, Taiwan), the site of the study by Lin et al.,[1] reported that SCCmec type III predominated during 1999–2004, whereas SCCmec types IV and V predominated during 2005.[3] Others have also reported changes in the predominant SCCmec types over time.[4] Therefore, this use of SCCmec typing may not be an accurate method for distinguishing between HA-MRSA and CA-MRSA.

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Hung-Chin Tsai, MD, PhD; Cheng-Len Sy, MD; Yao-Shen Chen, MD

From the Section of Infectious Diseases, Department of Medicine, Kaohsiung Veterans General Hospital, Kaohsiung (H.-C.T., C.-L.S., Y.-S.C.), and the National Yang-Ming University, Taipei (H.-C.T., C.-L.S., Y.-S.C.), Taiwan

Address reprint requests to Hung-Chin Tsai, MD, Section of Infectious Diseases, Department of Medicine, Kaohsiung Veterans General Hospital, 386 Ta-Chung 1st Road, Kaohsiung 813, Taiwan (hctsai1011@yahoo.com.tw).

All authors contributed equally to the composition of this letter.

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Reply to Tsai et al.

To the Editor—We agree with Tsai et al.[1] that staphylococcal cassette chromosome (SCC) mec typing may not be sensitive enough and specific enough to accurately classify methicillin-resistant *Staphylococcus aureus* (MRSA) infections as either healthcare associated (HA) or community associated (CA). In addition to the different molecular epidemiologic characteristics of CA-MRSA strains in Taiwan, the evidence of continued spread of CA-MRSA strains into hospital settings[2-4] and the detection of SCCmec type IV in a HA-MRSA strain, namely EMRA-15 (ST22-IV), which is endemic in many hospitals throughout the world, lead to occasional confusion regarding the definitions of CA-MRSA and HA-MRSA infections.[5,6] However, molecular epidemiological definitions based on SCCmec typing and phylogenetic analyses of the MRSA isolates are still regarded as the most reliable means for distinguishing between HA-MRSA and CA-MRSA strains.[5] In fact, MRSA strains carrying different SCCmec types are biologically different. The rationale for defining isolates carrying SCCmec types IV and V as CA-MRSA is based on the relatively small size of its genetic components, which facilitates the survival of CA-MRSA in the community setting.[7,8] On the contrary, antibiotic selective pressure and cross-transmission in the nosocomial setting contribute to the survival of MRSA isolates

carrying SCCmec types II and III in healthcare facilities. Our findings accord with this biological difference.[9] We observed that patients who were carrying MRSA isolates with SCCmec types IV and V were more likely to have received dialysis for a long time and to have had no history of hospitalization during the previous 12-month period. Moreover, MRSA isolates carrying SCCmec types II and III are rarely found in CA-MRSA infections in Taiwan.[2-4] The percentage of isolates carrying SCCmec types II and III in so-called CA-MRSA infection is still low, and there may be retrospective bias that some infections due to nosocomial MRSA strains may have been misclassified as CA-MRSA infections.[10,11] In addition, use of common clinical criteria to define CA-MRSA and HA-MRSA infections in patients receiving dialysis is not optimal because dialysis requires that they visit the hospital more frequently than persons from the general population. Therefore, molecular epidemiologic definitions based on SCCmec typing and phylogenetic analyses are considered to be a worthwhile method for differentiating between HA-MRSA and CA-MRSA infections in hospitalized persons.

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Chung-Chih Lin, MD; Jiun-Ling Wang, MD; Chi-Ying Lin, MD; Shey-Ying Chen, MD; Jann-Tay Wang, MD; Kwan-Dun Wu, MD, PhD; Shan-Chwen Chang, MD, PhD

From the Departments of Internal Medicine (C.-C.L., J.-L.W., C.-Y.L., J.-T.W., K.-D.W., S.-C.C.) and Emergency Medicine (S.-Y.C.), National Taiwan University Hospital, the Section of Nephrology, Department of Internal Medicine, China Medical University Hospital (C.-C.L.), and the Department of Internal Medicine, E-Da Hospital/I-Shou University (J.-L.W.), Taipei, Taiwan.

Address reprint requests to Shan-Chwen Chang, MD, Section of Infectious Disease, Department of Internal Medicine, National Taiwan University Hospital, No. 7 Chung-Shan South Road, Taipei 100, Taiwan (changsc@ntu.edu.tw).

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