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英文題目：Genotyping of 292 methicillin-resistant *Staphylococcus aureus* isolates from invasive infections and their correlation with antibiotic susceptibility

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Background: Invasive infections caused by methicillin-resistant *Staphylococcus aureus* (MRSA) lead to significant morbidity and mortality. Genotyping using the genome named staphylococcal chromosome cassette *mec* (SCC*mec*) has been widely used for typing healthcare-associated (HA-MRSA) and community-associated MRSA (CA-MRSA) isolates. The goal of this study was to delineate the molecular typing results of invasive MRSA isolates and to correlate these with the susceptibility results of commonly used antibiotics.

Methods: Non-duplicate *mecA*+MRSA isolates from patients with invasive infections were collected from a 1,130 bed-affiliated medical center in central Taiwan during 8-year period (2011-2018). All MRSA was genotypically confirmed by existence of mecA gene with the polymerase chain reactioin (PCR). The SCC*mec* types was determined using multiplex PCR Antimicrobial susceptibility tests of vancomycin, oxacillin, and cefoxitin were performed with agar dilution test. The correlation of SCC*mec* types of MRSA with antibiotic susceptibility results was analyzed.

Results: There were 292 invasive *mecA*+MRSA were collected, and most were isolated from blood (234, 80.1%), followed by pleural effusion (24, 8.2%), bronchoalveolar lavage (BAL) (10, 3.4%), 8 isolates (2.7%) for ascites, cerebrospinal fluid (CSF), and synovial fluid, respectively. The numbers and percentage of the SCC*mec* type I, II, III, IV, V, V_T, and undetermined were 3 (1.0%), 32 (11.0%), (56, 19.2%), 104 (35.6%), 34 (11.6%), 32 (11.0%), and 31 (11.6%), respectively. MRSA isolates harboring SCC*mec* I, II, and III were classified as HA-MRSA, (91, 31.2%), while those with SCC*mec* IV, V, and V_T were classified as CA-MRSA (170, 58.2%). The susceptibility rates of MRSA isolates to vancomycin, oxacillin, and cefoxitin were 97.9%, 20.2%, and 18.2%, respecitvely. While correlating the antibiotic susceptibility with molecular types, CA-MRSA harbored significantly higher susceptibility rate to oxacillin and cefoxitin than those of HA-MRSA (15.9% vs 4.4%, $p < 0.01$; and 14.1% vs 4.4%, $p < 0.05$; respectively).

Conclusion: The epidemiologic study of invasive MRSA shows that molecularly CA-MRSA has signficantly surpassed the HA-MRSA, and it harbors lower antibiotic resistance.