1 Abstract

2 Inducible resistance to the macrolide, lincosamide, and streptogramin B (iMLS_B) 3 antibiotic family is a latent mechanism for antimicrobial resistance in Staphylococcus *aureus*. We here investigated the frequency and genotypic profiles of iMLS_B resistance in 4 5 clindamycin (CLDM)-susceptible S. aureus isolated in Okayama University Hospital from June 2020 to June 2021. We phenotypically screened the iMLSB resistance via D-6 7 zone test and performed PCR testing for the erythromycin ribosomal methylase (erm) 8 genes: ermA and ermC. Among 432 CLDM-susceptible S. aureus isolates, 138 (31.9%) 9 exhibited an iMLS_B-resistance phenotype, with methicillin-resistant S. aureus isolates 10 (MRSA; 61 isolates: 58.6%) exhibiting higher positivity than methicillin-sensitive S. aureus isolates (MSSA; 77 isolates: 23.5%) (p<0.001). Male patients had a higher 11 12 frequency of iMLSB resistance than females (OR [95%CI]: 1.8 [1.2–2.8]; p=0.007). Genotypically, ermA predominated in both MSSA (70.1%) and MRSA (86.9%) compared 13 14 to ermC (14.3% in MSSA and 11.5% in MRSA). A single strain of MRSA possessed both 15 ermA and ermC, while 12 (15.6%) MSSA isolates were negative for both ermA and ermC, suggesting the presence of other genetic mechanisms. Collectively, these results show 16 17 that approximately 33% of CLDM-susceptible S. aureus isolates at our university hospital 18 exhibited iMLS_B resistance, predominantly caused by *ermA* in both MSSA and MRSA.