AMENDED ABSTRACT

Background: Daptomycin (DAP) is a cyclic lipopeptide approved by the FDA in March 2003 for treatment of complicated skin infections and endocarditis. However, since its approval, there have been increasing reports of daptomycin non-susceptibility worldwide. The objective of this study was to describe the in vitro susceptibility of a large number of Gram-positive aerobic isolates from medical centers throughout the United States (US), Europe, and Asia-Pacific region (APAC).

Methods: A total of 149,519 clinical specimens were tested from January 2005 to December 2012. The susceptibility was determined by a broth microdilution method and interpreted according to CLSI guidelines (3rd edition). A subsample of 5,179 Clinical Laboratory Improvement Amendments (CLIA)-approved laboratories was also included. Isolates were categorized into five groups: Staphylococcus aureus (SA), Staphylococcus epidermidis (SE), Staphylococcus saprophyticus (SS), Enterococcus faecalis (EFM), and Enterococcus faecium (EFM).

Results: A total of 149,519 clinical isolates from 5,179 CLIA-approved laboratories were included, from 1,013 Centers in 38 countries. Overall, 145,074 (97.6%) isolates were susceptible to DAP (MIC ≤0.5 µg/ml). In the US alone, 132,580 (94.6%) were DAP-susceptible (MIC ≤0.5 µg/ml). The rates of DAP-susceptible isolates were highest in North America (98.5%), followed by Europe (97.0%) and Asia-Pacific region (96.4%). The highest DAP-susceptibility was observed in SA (99.5%) followed by EFM (99.7%) and SE (99.7%). Overall, 4,445 (3.0%) were DAP-resistant (MIC ≥2 µg/ml) and 3,179 strains (2.1%) were DAP-intermediate (MIC 0.5–1 µg/ml). A large number of reports have shown that daptomycin is highly active against staphylococci, enterococci and streptococci, while vancomycin-susceptible S. aureus and penicillin-susceptible Streptococcus pneumoniae were highly susceptible to DAP (MIC ≤0.25 µg/ml).

CONCLUSIONS: Daptomycin was highly active against an extensive longitudinal collection of Gram-positive aerobic isolates from medical centers throughout the United States, Europe, and Asia-Pacific region. This study provided important information to guide daptomycin therapy worldwide.

REFERENCES