ABSTRACT

Objective: Omiganan, a topical cationic antimicrobial peptide, is being studied for prevention of catheter-related infections in a large, multicenter phase III trial, which demonstrated the incidence of HAIs. Recently, omigananpentahydrochloride (formerly MBI 2917) is being studied for preventing catheter-related infections in a Central Line Infection Reduction Phase III Clinical Trial of Topical Omiganan 1% Gel Versus 10% Povidone Iodine.

MATERIALS AND METHODS

Bacterial Isolates and Clinical Cases. One S. aureus and one S. epidermidis were recovered from a single patient admitted to the Hospital Clinico San Carlos, Madrid, Spain. Prior to catheter placement and insertion, the patient had a two-year history of mechanical ventilation. He was diagnosed with community-acquired pneumonia and was discharged from the ICU on July 8 and from hospital on July 15.

Antimicrobial Susceptibility Testing. Both Staphylococcus spp. isolates were tested for susceptibility by reference broth microdilution method using cation-adjusted Mueller-Hinton broth in commercially prepared and validated panels (TREK Diagnostics, Cleveland, Ohio). Chloramphenicol, linezolid, and quinupristin/dalfopristin were used as quality control (QC) strains utilized according to the Clinical and Laboratory Standards Institute (CLSI; M7-A7, 2006). The strains were tested against a variety of antimicrobial agents, including clindamycin, chloramphenicol, linezolid, mupirocin, rifampin, and quinupristin/dalfopristin.

RESULTS

- Both isolates possessed the staphylococcal cassette chromosome mec (SCCmec) type I.
- Both isolates harbored SCCmec type I. In addition, S. aureus and S. epidermidis were associated with ST-22 (spa type 109) and ST-2, respectively.

CONCLUSIONS

Both cfr-mediated isolates showed a resistance phenotype to most clinically relevant antimicrobial agents, and were overall very susceptible to vancomycin, daptomycin (lipopeptide), tetracycline and tigecycline (glycopeptides).

cfr genes were embedded in different size plasmid bands and both genes showed distinct surrounding sequences, suggesting diverse acquisition events and origins.

S. aureus isolate ST-22-81, which belongs to the Southern German clone. Isolates belonging to this clone have been detected in several European countries, such as Germany, Slovenia, Hungary, Belgium, Switzerland, Portugal, Italy and Spain.

- S. epidermidis was ST-2-1, which has been recently recognized as being widely disseminated and identified in several countries worldwide, such as Denmark, Italy, Iceland, Germany, Greece, Spain, Hungary, Belgium, Japan, and Bulgaria.

This report highlights the ability of staphylococci to acquire MDR and the potential for cfr dissemination in clinically important human clones, representing a serious threat against current Gram-positive antimicrobial agents.