Daptomycin Activity and Spectrum when Tested Against Contemporary (2009) Gram-positive Strains Collected in European Medical Centers

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ABSTRACT

INTRODUCTION

Daptomycin is a lipopeptide with a unique mechanism of action and rapid bactericidal activity against a wide spectrum of Gram-positive pathogens, including clinical isolates of Staphylococcus aureus (SA), vancomycin-resistant (VR) Enterococcus spp. (VRE) and methicillin-resistant (MRSA), vancomycin-resistant (VR) Enterococcus spp. (VRE) and methicillin-resistant (MRSA) Staphylococcus aureus (SA) [1]. Since its approval in 2003, Daptomycin has been widely used throughout the world. However, increasing prevalence of resistance to daptomycin has been reported [2]. The purpose of this study was to determine the current activity spectrum of daptomycin and the emergence of resistance in recently collected Gram-positive strains from European medical centers.

MATERIALS AND METHODS

Bacterial strains: A total of 2,775 consecutive strains were collected from 24 medical centers located in 10 European countries and the Middle East. The centers were located in Belgium (BHS; 835), France (596), Germany (150), Italy (152), Switzerland (35), Turkey (35), and Israel (35). The collection included: SA (1,398), coagulase-negative staphylococci (SN; 214), Staphylococcus aureus (SA; 761), Enterococcus faecalis (265), Enterococcus faecium (265), and viridans group streptococci (VGS; 93).

Susceptibility testing: Daptomycin and comparator agents were tested using the Clinical and Laboratory Standards Laboratory (CLSI) and EUCAST broth microdilution method. All strains were tested in valid broth microdilution panels according to EUCAST. The CLSI broth microdilution panels were used for testing daptomycin. Susceptibility breakpoints of 1 mg/L for SA (ATCC 29212) and 0.25 mg/L for VGS were used for susceptibility testing.

RESULTS

All strains were susceptible to daptomycin (MIC ≤0.06 mg/L). All strains were susceptible to ampicillin (MIC ≤0.25 mg/L), linezolid (MIC ≤0.5 mg/L), and tigecycline (MIC ≤2 mg/L). All SA strains were susceptible to daptomycin (MIC ≤0.25 mg/L), Vancomycin (MIC ≤0.5 mg/L), and Linezolid (MIC ≤2 mg/L).

CONCLUSIONS

Daptomycin showed sustained potency and broad spectrum activity against recent (2009) clinical isolates of Gram-positive pathogens collected from European medical centers, including resistant isolates.

All organisms tested were susceptible to daptomycin based on CLSI and EUCAST breakpoints. All tested strains did not adversely influence daptomycin activity.

The results of the present study indicate that daptomycin continue to provide effective empiric coverage for Gram-positive infections in European medical centers, including MRD isolates.

REFERENCES


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