In this presentation, we perform a potency evaluation of radezolid, torezolid and linezolid when tested by reference methods against a collection of linezolid-NS Gram-positive cocci having genetically defined mechanisms of oxazolidinone resistance.

RESULTS

A graphical summary of the activity of radezolid, torezolid and linezolid when tested by reference methods against a collection of linezolid-NS Gram-positive cocci having genetically defined mechanisms of oxazolidinone resistance is shown in Figure 2.

METHODS

Bacterial Strain Collection: Bacterial clinical strains included in this investigation were obtained from the JMI Laboratories strain collection (number listed for strains). Enterococcus faecalis (8), Enterococcus faecium (15), Staphylococcus aureus (40), and coagulase-negative staphylococci (CoNS; 40).

All isolates were identified to species level by at least two laboratories including a reference laboratory, JMI Laboratories (North Liberty, Iowa, USA).

Molecular Methods: Linezolid resistance mechanisms were characterized by molecular methods. All selected organisms were screened for mutations on 23S rRNA, L3 and L4-encoding genes by PCR and nucleotide sequencing. In addition, the organisms were also screened for the cfr gene (Long et al., 2006; Mendes et al., 2008).

Susceptibility Testing: All isolates were tested for susceptibility to linezolid, torezolid (both manufactured by Rib-X Pharmaceuticals), linezolid, erythromycin, clindamycin and trimethoprim-sulfamethoxazole by disk diffusion methods according to the Clinical and Laboratory Standards Institute (CLSI). All E. faecalis and E. faecium isolates contained MIC50 values ≤ 0.25 mg/L for both linezolid and -predoxin. MIC50 values ≥ 8 mg/L for clindamycin, and MIC50 values ≥ 32 mg/L for erythromycin were considered resistant, respectively (Table 2).

Conclusion: Radezolid and torezolid demonstrated enhanced activity against this collection of 90 linezolid-NS Staphylococcus aureus strains. Radezolid showed at least two-fold greater potency when compared directly to torezolid against most strains. The activities of these two new investigational oxazolidinones add to the linezolid-NS-gram-positive pathogens are encouraging and support further clinical development of these compounds.

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