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ABSTRACT

Objectives: To assess the activity of telavancin when tested against a worldwide collection of rarely isolated clinical pathogens using a revised broth microdilution method. This revised method for telavancin utilizes dimethyl sulfoxide as solvent and diluent for stock solution preparation and dilution, following the CLSI guidelines for water-insoluble agents, and incorporates polysorbate-80 for Tween, (0.002%) in the test medium. Like other lipopeptides, addition of P80 is deemed necessary for more accurate and reproducible telavancin MIC determinations.

Methods: A total of 1656 coagulase-negative staphylococci (CONS), 2039 viridans streptococci, 157 Staphylococcus epidermidis, and other 69 Gram-positive isolates (three genera) collected over a 3-year period were evaluated (SENTRY Antimicrobial Surveillance Program, 2011-2013). Isolates were submitted to a central laboratory and identification was performed by standard algorithms and MALDI-TOF. Susceptibility testing for comparator agents was performed by CLSI methods (M7-A9). Quality assurance applied MIC QC ranges from CLSI M-31-A4. Information of MIC results for telavancin used the updated US FDA criteria, while comparator agents were guided by current EUCAST (2014) and CLSI (2014) breakpoint criteria.

Results: Isolates were recovered primarily from bloodstream (44%), skin and soft tissues (28%), and respiratory tract infections (16%), and were submitted to be tested against CONS species, Staphylococcus aureus and coagulase-negative staphylococci (CONS), Strep- tococcus aureus and coagulase-negative streptococci (CONS), Staphylococcus epidermidis, other Gram-positive isolates (three genera) and other Gram-positive species (six groups).% MIC ranges when tested against ATCC strains were those (M 01.05 ≤ MIC ≤ M 01.05 , except for S. aureus M 01.05 ≤ MIC ≤ M 01.05 for telavancin, except for S. luteus (M 01.05 ≤ MIC ≤ M 01.05 ). All QC results were within published acceptable ranges. This revised BM D method provides minimal inhibitory concentration (MIC) results for telavancin that are lower than the previously established methodology.

Materials and Methods: A total of 3821 consecutive, non-duplicate Gram-positive clinical isolates were tested for susceptibility by BM D following the CLSI M 07-A9. Testing was performed using dry-form panels manufactured by JM I Laboratories. Telavancin MIC ranges when tested against ATCC strains were those (M 01.05 ≤ MIC ≤ M 01.05 , except for S. aureus M 01.05 ≤ MIC ≤ M 01.05 for telavancin, except for S. luteus (M 01.05 ≤ MIC ≤ M 01.05 ). All QC results were within published acceptable ranges. This revised BM D method provides minimal inhibitory concentration (MIC) results for telavancin that are lower than the previously established methodology. Clinical strains were deemed necessary for more accurate and reproducible telavancin MIC determinations.

CONCLUSIONS

- Telavancin exhibited potent in vitro activity when tested against less common pathogens recovered from human clinical specimens. In addition, this investigation confirms the spectrum and potency of telavancin against these less commonly encountered Gram-positive species.

- The results presented here were obtained using a revised CLSI reference BMD method for telavancin that replaces the previously established susceptibility testing methodology. Therefore, this study provides new, markedly lower baseline MIC results for telavancin when tested against these less common pathogens.

REFERENCES


RESULTS

- This revised BMD method provides minimum inhibitory concentration (MIC) results for telavancin that are lower than the previously established methodology.

- Therefore, this study was performed to assess the activity of telavancin when tested against a worldwide collection of rarely isolated clinical pathogens using a revised BMD method (CLSI, 2014).

- Telavancin activity against uncommonly isolated Gram-positive pathogens responsible for documented infections at hospitals worldwide (2011-2013) when using a revised susceptibility testing method.

- A total of 99% of CONS isolates exhibiting vancymicin MIC results at 22 mg/L, were susceptible to telavancin (MIC of 0.03-0.06 mg/L) at ≤0.12 mg/L, (data not shown).

- In general, telavancin showed minimal MIC and MBC values of ≤0.06 mg/L among tested CONS species. Slightly lower MIC results were noted for S. epidermidis (M 01.05 ≤ MIC ≤ M 01.05 ), S. saprophyticus (M 01.05 ≤ MIC ≤ M 01.05 ), and S. pyogenes (M 01.05 ≤ MIC ≤ M 01.05 ). All MIC results were within published acceptable ranges. Telavancin demonstrates marked activity against these CONS species (data not shown).

- Telavancin exhibited MIC and MBC values of ≤0.06 mg/L, for most CONS species (S. epidermidis (M 01.05 ≤ MIC ≤ M 01.05 ), S. saprophyticus (M 01.05 ≤ MIC ≤ M 01.05 ), S. pyogenes (M 01.05 ≤ MIC ≤ M 01.05 ), S. milleri (M 01.05 ≤ MIC ≤ M 01.05 ), and S. anginosus (M 01.05 ≤ MIC ≤ M 01.05 ). All MIC results were within published acceptable ranges. This revised BM D method provides minimal inhibitory concentration (MIC) results for telavancin that are lower than the previously established methodology.

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