Quality Control Ranges for Performance Assessment of a Revised Broth Microdilution Susceptibility Testing Method for Telavancin

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ABSTRACT

Telavancin (TN004; formerly NF-1756) is a lipoglycopeptide antibiotic with a unique mechanism of action. Telavancin inhibits bacterial cell-wall synthesis and disrupts bacterial cell membranes by inhibiting peptidoglycan synthesis and binding to components of the glycosylated lipoprotein complex. Telavancin is approved for the treatment of complicated skin and skin structure infections caused by Gram-positive bacteria and skin and skin structure infections caused by S. aureus or S. pyogenes, including methicillin-resistant strains. The study presented here was performed according to the guidelines found in the CLSI M23-A3 document, which specifies the use of at least seven laboratories and three different microdilution media lots for the performance of inter- and intra-laboratory comparisons of telavancin minimum inhibitory concentrations (MICs) results obtained when tested against the American Type Culture Collection (ATCC) QC strains. Ten replicate tests were performed for each medium lot, and inter- and intra-laboratory comparisons of telavancin MIC results obtained when tested against the listed ATCC QC strains were made. Telavancin MIC distributions for the ATCC QC strains were compared through a comparison of revised ranges for the methods described in this study with the published ranges of the previous methods. The MIC distributions for the ATCC QC strains were narrow and more reproducible when compared with those obtained by the previously established susceptibility testing method. The revised range for the ATCC QC strains was 0.06–1 µg/mL (all MIC values were within range), compared to 0.06–2 µg/mL (43.2% of results were outside the range established from results obtained by the previously established method). Telavoncin MIC (µg/mL) QC ranges for BM D (% in range) ATC C = American Type Culture Collection; MIC = minimum inhibitory concentration.

RESULTS

The telavancin MIC ranges obtained for the American Type Culture Collection QC strains were narrow and more reproducible when compared with those obtained by the previously established susceptibility testing method. The revised range for the ATCC QC strains was 0.06–1 µg/mL (all MIC values were within range), compared to 0.06–2 µg/mL (43.2% of results were outside the range established from results obtained by the previously established method). Telavancin MIC (µg/mL) QC ranges for BM D (% in range) ATC C = American Type Culture Collection; MIC = minimum inhibitory concentration.

MATERIALS AND METHODS

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