1210. Broad In Vitro Activity Analysis of Tedizolid Compared with Other Agents against a Global Collection of Gram Positive Isolates Causing Bloodstream Infections (2014-2016)

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Background. Tedizolid (TZD) is an oxazolidinone derivative with oral and intravenous formulations approved for the treatment of acute bacterial skin and skin structure infections in the US, European countries, and other regions. This study evaluated TZD’s and comparators’ activity against a collection of clinical isolates causing bloodstream infections (BSI).

Methods. A total of 7,284 gram-positive isolates collected during the Surveillance of Tedizolid Activity and Resistance (STAR) Program for 2014–2016 were included. Bacteria were identified by standard algorithms and MALDI-TOF-MS. Susceptibility (S) testing was performed by CLSI methods, and interpretation used CLSI and EUCAST criteria.

Results. This Staphylococcus aureus collection contained 33.8% methicillin-resistant isolates. TZD was the most potent agent tested against all S. aureus (MIC <0.12/0.12 μg/mL; 100.0%(S)) and the MRSA subset (Table). Other tested agents described in Table also had in vitro MRSA coverage. 15.6% of enterococci were vancomycin-resistant, which were mostly Enterococcus faecium (59.8%). Linezolid (LZD), ampicillin, daptomycin (DAP), and vancomycin (VAN) showed equivalent MIC₅₀ values (1 μg/mL) against E. faecalis, but these MIC₅₀ results were 8-fold higher than TZD (MIC₅₀ 0.12 μg/mL). Although LZD and DAP were highly active (98.9–99.4%) against E. faecium, MIC₅₀ results were 8- to 16-fold higher than TZD. The panel of LZD and DAP Ceftriaxone (CPT) showed the lowest MIC₅₀ values against Streptococcus pneumoniae, whereas TZD and VAN were similarly active. TZD and CPT showed the lowest MIC₅₀ values against viridans group streptococci, while CPT, ceftriaxone, and penicillin had the lowest MIC₅₀ results against β-hemolytic streptococci.

Conclusion. TZD had potent activities against this global population of gram-positive clinical isolates that caused BSI. This in vitro potency and a favorable pharmacodynamic profile may suggest TZD is a promising candidate for treating BSI caused by gram-positive isolates, especially E. faecium.

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1211. In vitro Susceptibility Testing of Essential Oils against Gram-positive and Gram-negative Clinical Isolates, including Carabanpem-resistant Enterobacteriaceae (CRE)

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Background. In the era of antibiotic resistance, alternative anti-infectives must be explored. The National Action Plan for Combating Antibiotic-Resistant Bacteria calls for developing nontraditional therapeutics, including natural compounds such as essential oils (EOs) (Goal 4.4). A pilot study previously showed in vitro activity of EOs against CRE and warranted further study of their antibacterial activity. We studied cinnamon bark, clove, lavender, lemongrass, eucalyptus, oregano, rosemary, thyme, tea tree, manuka, and Thieves® blend (Young Living Essential Oils, Lehi UT) against an expanded panel of gram-positive and gram-negative isolates.

Methods. 30 Gram-positive and 70 Gram-negative clinical isolates, including CRE, were tested using CLSI methods. Isolates were grown overnight on TSA; 0.5 McFarland suspensions in sterile water were swabbed over Mueller–Hinton agar using the Kirby–Bauer method. 20 μl of full-strength oils were pipetted onto blank paper disks and a sterile disk was placed aseptically onto the plates immediately after inoculating disks. Vancomycin was tested with Gram-positives and meropenem with Gram-negatives. Median zone diameters are shown.

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