

Fusidic Acid Activity and Coverage of Gram-positive Pathogens Associated with Acute Bacterial Skin and Skin Structure Infections (ABSSSI) in the USA (2008-2010)

Abstract 944

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Objectives: To determine the susceptibility (S) rates and activity of fusidic acid (FA; CEM-102) tested against Gram-positive pathogens that cause ABSSSI, isolated in the USA during 2008-2010 (16,033 strains) using CLSI reference broth microdilution methods and the EUCAST (≤ 1 mg/L) S breakpoint concentration

Methods: *Staphylococcus aureus* (SA; 12,062 strains, 52% MRSA), coagulase-negative staphylococci (CoNS; 2,061 strains, 71% methicillin-resistant [R]), and 1,910 beta-haemolytic streptococci (BHS; 684 group A and 933 group B). Totals of 4940, 5006 and 6087 strains were tested in 2008, 2009 and 2010, respectively from 65 medical centers in 37 states including all nine Census Regions. Organisms were dominantly from bacteremias (61%), ABSSSI (25%) and pneumonia (14%), all tested by the CLSI M07-A8 method and non-S SA strains were tested by molecular methods to detect R mechanisms, and by PFGE to determine possible clonality.

Results: FA was consistently active against SA (MIC_{90} , 0.12 mg/L) across all years (2008-2010) without significant change in the S rate (99.73% at ≤ 1 mg/L). MRSA and methicillin-S SA had the same FA-S rates and $MIC_{50/90}$ results, but MR-CoNS were slightly less S (90.76%) than MS-CoNS (97.28%) strains. BHS were less inhibited by FA ($MIC_{50/90}$, 8/16 mg/L), however 99.42% of Group A (*S. pyogenes*) isolates were inhibited at ≤ 8 mg/L (FA PK trough concentration = 80 mg/L). 21 SA strains had MIC values at 2-8 mg/L with leading R mechanisms detected of *fusA* (4; M453I, L461S, A471V + P404L), *fusB* (3) *fusC* (12) and *fusE* (2; G78 to Q99 deletion). R-mechanisms were found among all tested strains with FA MIC at 2 mg/L or greater. Clonal occurrences were noted within or between monitored years in 4 hospitals; 3 states (2 in New York).

Conclusions: FA remains highly active against SA (99.73% S) and other ABSSSI pathogens isolated in the USA. CoNS were slightly less S at ≤ 1 mg/L (92.62%) and 99.42% of *S. pyogenes* were inhibited at ≤ 8 mg/L. FA-R mechanisms were dominantly acquired (71% *fusB* or C). FA appears to be an excellent orally-administered (novel leading-dose strategy) systemic drug candidate against the relatively naïve staphylococcal population in the USA.