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P2780 Performance of amoxicillin/clavulanic acid disk diffusion against broth microdilution from bloodstream isolates non-susceptible to ceftriaxone

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Background: Amoxicillin/clavulanic (AMC) acid is a beta-lactam/beta-lactamase inhibitor (BLBI) combination often utilised for treatment of Enterobacteriaciae. Clinical microbiology laboratories frequently utilise disk diffusion testing for determining susceptibility to BLBIs. In this study, we tested the performance of AMC disk diffusion against broth microdilution from bloodstream isolates collected from the MERINO study, an international randomised trial of patients enrolled with ceftriaxone non-susceptible *E. coli* and *K. pneumoniae*.

Materials/methods: MIC testing was performed by broth microdilution (BMD) using custom made Sensititre plates (Thermo Fisher) with an AMC range between 4 µg/ml and 256 µg/ml and performed according to EUCAST recommendations with a fixed concentration of 2 µg/ml of clavulanic acid. AMC disk diffusion was performed with

20/10 µg AMC disks (BD) on Mueller Hinton agar, as per EUCAST recommendations. Isolates were assessed as susceptible by BMD and disk diffuson based upon EUCAST v8.0 breakpoint tables for standard (≤ 8 µg/mL/ ≥ 19 mm) and uncomplicated UTI infections (≤ 32 µg/mL/ ≥ 16 mm).

Results: 307 isolates were included in this study, collected from initial blood cultures from enrolled patients in the MERINO trial. Susceptibility rates were significantly higher by disk testing than by BMD (42.7% vs 21.5%) at the standard breakpoint. At this breakpoint, the performance of disk testing demonstrated a significant very major error rate (VME; false susceptible) of 18.1% and major error rate (ME; false resistant) of 3.3%. When uncomplicated UTI breakpoints were applied, susceptibility again remained higher by disk diffusion to BMD (65.5% vs 53.1%). At this breakpoint, VME rates (11.1%) were lower, however, ME rates (6.6%) were higher than for standard breakpoints.

Conclusions: Significant error rates for AMC disk testing were noted comparative to BMD at both standard and uncomplicated UTI breakpoints. These error rates suggest clinicians should be cautious when interpreting AMC disk diffusion reporting of susceptibility in isolates non-susceptible to ceftriaxone.