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Paper Poster Session VI

Methods of antibacterial susceptibility testing

"Comparison of ceftobiprole susceptibility testing using broth microdilution and gradient strip (Etest®)"

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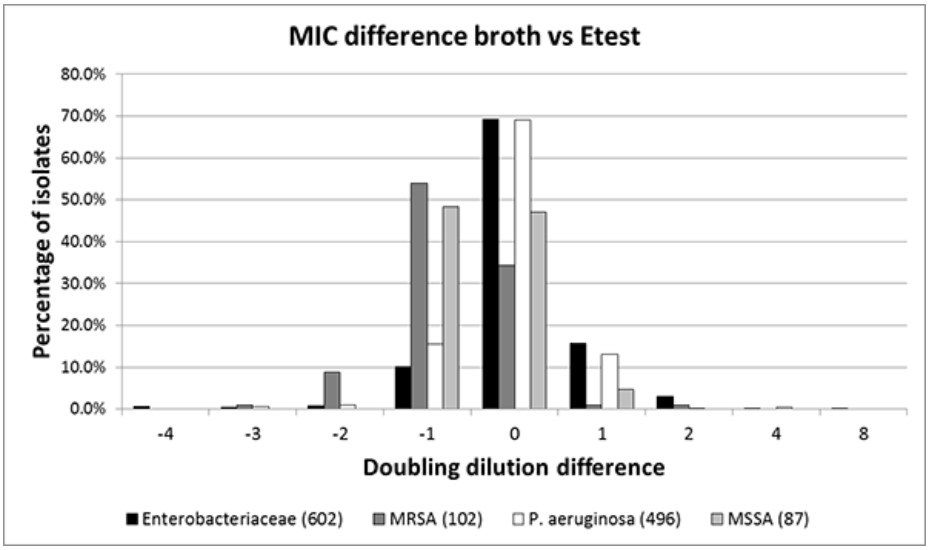
Objectives: Ceftobiprole is a novel anti-MRSA cephalosporin approved in Europe for the treatment of community-acquired pneumonia and hospital-acquired pneumonia (excluding ventilator-associated pneumoniae. This study was carried out to confirm whether or not susceptibility testing by Etest was comparable to the gold standard broth microdilution methodology.

Methods: A subset of 1287 isolates from a surveillance collection used previously to demonstrate the activity of ceftobiprole against clinical isolates from Europe and the Middle east was used [Rossolini *et al* (2011). J Antimicrob Chemother. 66:151-9.]. Minimum inhibitory concentration (MIC) for ceftobiprole was determined by CLSI broth microdilution and by Etest (bioMerieux) against 602 *Enterobacteriaceae*, 102 methicillin-resistant *S. aureus* (MRSA), 87 methicillin-susceptible *S. aureus* (MSSA) and 496 *P. aeruginosa*. Absolute differences in MIC values were measured and MIC by broth was plotted against MIC by Etest (MICs rounded to the nearest doubling dilution). Comparisons were also made according to EUCAST breakpoint category (*Enterobacteriaceae* [S≤0.25:R>0.25 mg/L]; *S. aureus* S≤2:R>2 mg/L]) or PK/PD breakpoint category (*P. aeruginosa* [S≤4:R>4 mg/L]). These were classified as no error, major error (false resistant by Etest) or very major error (false susceptible by Etest).

Results: For all isolates combined 1237/1287 (96.0%) had an MIC by Etest that differed by no more than one dilution from the broth MIC. This was consistent within the separate organism groups as shown in the Figure. All *S. aureus* were susceptible to ceftobiprole (MIC ≤ 2 mg/L) with no discrepant results using Etest. For *Enterobacteriaceae* 3/602 (0.5%) were false-susceptible by Etest (very major error) and 4/602 (0.7%) were false-resistant by Etest (major error). For *P. aeruginosa*, no very major errors were observed and 4/496 (0.8%) were false-resistant by Etest (major error).



Conclusions: MIC by Etest compared very well with broth microdilution MIC. Etest should therefore be a reliable device for clinical laboratories to determine ceftobiprole susceptibility with *Enterobacteriaceae*, *S. aureus* and *P. aeruginosa*.