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Abstract (poster session)

Disc diffusion antimicrobial-susceptibility testing of the Bacteroides fragilis group using EUCAST clinical minimum inhibitory concentration (MIC) breakpoints

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Objectives: The clinical significance of increasing levels of antimicrobial resistance in the B. fragilis group emphasises the need for a simple susceptibility test method for the routine laboratory. The aim of our study was to calibrate zone diameter breakpoints from disk diffusion to gold standard agar dilution MICs and to suggest tentative zone diameter breakpoints, using the EUCAST clinical MIC breakpoints. Methods: consecutive clinical B. fragilis group isolates from blood cultures (n=88) from Odense University Hospital and resistant isolates (n=16) from the R. M. Alden Research Laboratory (Los Angeles, USA), were included in the study. The isolates were tested with agar dilution (piperacillin-tazobactam, meropenem, metronidazole and clindamycin) according to the CLSI guideline M11-A8 and disk diffusion (standard EUCAST potency and metronidazole 5 microgram from Oxoid, Basingstoke, UK). Disk diffusion was performed on Brucella blood agar supplemented with hemin and vitamin K (Becton Dickinson, Heidelberg, Germany). The plates had been prereduced 18-24 hours before use. A 1 McFarland suspension was prepared in thioglycolate broth and plates were incubated at 37°C (complying with the EUCAST 15-15-15 rule) in an anaerobe environment for 24 hours (clindamycin 48 hours). The zone diameter was read at 100% inhibition. Zone diameter breakpoints were chosen to minimise very major discrepancies, VMD, major discrepancies, MD, and minor discrepancies, mD, according to the ISO guideline 20776-2:2007. Results: The 104 isolates were categorised as resistant, intermediate or susceptible by agar dilution as follows: piperacillin-tazobactam 11, 6 and 87, meropenem 9, 10 and 85, metronidazole 3, 0 and 101 and clindamycin 26, 0 and 78. Tentative zone diameter breakpoints with VMD, MD and mD are presented in Table 1. Conclusion: There was good agreement between susceptibility categorization using MICs and zone diameters. Disk diffusion was able to detect resistance with an acceptable level of VMD, according to ISO guideline 20776-2:2007. Disk diffusion could be an option for antimicrobial susceptibility testing of the B. fragilis group. Our results indicated that resistance and susceptibility to clindamycin was accurately predicted using 24 hour disk diffusion testing.

Antimicrobial agent	Tentative zone diameter breakpoints (mm)		EUCAST clinical MIC breakpoints (mg/L)		Discrepancies (%)		
	S≥	R<	S≤	R>	VMD	MD	mD
Piperacillin-tazobactam	23	17	8	16	1	0	9.6
Meropenem	29	19	2	8	0	0	4.8
Metronidazole	25	25	4	4	0	1	-
Clindamycin 24 hours	8	8	4	4	1	1.9	-
Clindamycin 48 hours	8	8	4	4	0	6.7	-