

P0681

Paper Poster Session

Antimicrobial resistance in anaerobes

**Noticeable levels of reduced antimicrobial susceptibility in *Bacteroides fragilis* group bacteria isolated from faecal samples from healthy children in Denmark**

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**Background:** Reduced antimicrobial susceptibility is prevalent in the *Bacteroides fragilis* group. Approximately 4-10% of clinical *B. fragilis* isolates show reduced susceptibility towards meropenem. We ascertained the prevalence of antimicrobial resistance in *Bacteroides fragilis* group isolated from healthy children in Denmark, representing a relatively antibiotic 'naïve' population.

**Material/methods:** Faecal samples from 174 children 0-6 years old were plated on Brucella blood agar supplemented with vancomycin (7.5 µg/ml) and kanamycin (100 µg/ml.), with colistin 150 µg tablets placed on the plates that were incubated for three days in anaerobic atmosphere. Up to three morphologically distinct colonies were identified by MALDI-TOF MS (Biotyper). If a score  $\geq 2$  could not be achieved, 16S rRNA gene sequencing was performed. Isolates were screened for meropenem (MEM), piperacillin-tazobactam (TZP), metronidazole (MTZ) and clindamycin (CLI) susceptibility by disk diffusion (Luu *et al* ECCMID 2013). MIC determination was performed using E-test (biomerieux) or M.I.C.E (Oxoid) gradient strips and EUCAST breakpoints if disk diffusion zones were below 29, 23, 25 and 10 mm for MEM, TZP, MTZ and CLI respectively.

**Results:** 346 single isolates of *B. fragilis* group bacteria were isolated from 170 of 174 faecal samples. Prevalences of reduced antimicrobial susceptibilities are shown in table 1. Reduced susceptibility towards MEM was 1.7% overall with the highest prevalence of 4.2% for *B. fragilis*. High levels of reduced susceptibility towards TZP was observed for *B. thetaiotaomicron*. No isolates with reduced susceptibility towards MTZ were found. Clindamycin resistance was lowest for *B. fragilis* (9.4%) and highest for *B. ovatus* (29.7%)

Table 1. Percentage of *Bacteroides fragilis* group isolates with reduced susceptibility (I/R).<sup>a</sup>

<i>Bacteroides fragilis</i> group ssp.	n	MEM	TZP	MTZ	CLI <sup>b</sup>
<i>Bacteroides ovatus</i>	101	2.0% (0/2)	1.0% (1/0)	0.0% (-/0)	29.7% (-/30)
<i>Bacteroides fragilis</i>	96	4.2% (1/3)	0.0% (0/0)	0.0% (-/0)	9.4% (-/9)
<i>Bacteroides vulgatus</i>	66	0.0% (0/0)	1.5% (0/1)	0.0% (-/0)	21.2% (-/14)
<i>Bacteroides thetaiotaomicron</i>	54	0.0% (0/0)	24.1% (6/7)	0.0% (-/0)	31.5% (-/17)
Other <sup>c</sup>	29	0.0% (0/0)	3.45% (1/0)	0.0% (-/0)	20.7% (-/6)

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Total	346	1.7% (1/4)	4.6% (1/0)	0.0% (-/0)	22.0% (-/76)
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I, intermediate-susceptible; R, resistant; MEM, meropenem; TZP, piperacillin/tazobactam; MTZ, metronidazole; CLI, clindamycin.

<sup>a</sup> Numbers of I and R are given in parenthesis

<sup>b</sup> There is no intermediate category for metronidazole and clindamycin

<sup>c</sup> *Bacteroides uniformis*, *Parabacteroides distasonis*, *Bacteroides caccae*, *Bacteroides salyersiae*, *Bacteroides fluxus*, *Bacteroides fingoldii*, *Parabacteroides goldsteinii*, *Bacteroides cellulosilyticus*.

**Conclusions:** In this cohort of healthy children, the prevalence of reduced susceptibility towards meropenem isolates was lower than what is observed in clinical isolates but noticeable. The lack of metronidazole resistant isolates was expected as this is still rare in the *B. fragilis* group. Follow up studies in similar populations could be used to monitor antimicrobial resistance in the *B. fragilis* group in the general population microbiota.