Enterotoxigenic Bacteroides fragilis (ETBF) Strains Isolated in the Netherlands and Poland are Genetically Diverse

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Received 5 December 2003

Abstract

Gram-negative anaerobic rods isolated in The Netherlands and Poland from extraintestinal and intestinal sources were identified as Bacteroides fragilis (n = 210) on the basis of Gram staining, growth on selective Bacteroides Bile Esculine medium as black colonies, and biochemical characteristics. PCR-mediated assessment of the presence of the B. fragilis enterotoxin (fragilysin) gene in all strains identified 12 so-called enterotoxin-positive B. fragilis (ETBF) strains (15%) among the Dutch strains and 16 ETBF among the Polish strains (13%). NotI Pulsed Field Gel Electrophoresis (PFGE) analysis revealed that these strains are genetically heterogeneous. Among the Dutch strains an identical pair and a set of four indiscriminate strains were identified. This suggests that limited nosocomial spread of ETBF can be observed. However, there was no identity observed when strains from The Netherlands were compared to their Polish counterparts. The antimicrobial susceptibility testing revealed that one Polish strain isolated from a patient with antibiotic associated diarrhoeae (AAD) was simultaneously highly resistant to clindamycin and cefoxitin (MIC > 256 mg/L). Two other strains appeared to be clindamycin resistant. All resistant strains had different PFGE patterns, suggesting that resistance development occurred at independent occasions.

Key words: Bacteroides fragilis, enterotoxin, PFGE, antibiotic resistance

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