Poster #2249

Fidaxomicin is active against strains isolated from primary and recurrent *Clostridium difficile* infections

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Abstract

Twenty percent of the patients with *Clostridium difficile* infection have a recurrent infection after primary episode. *C. difficile* is the major cause of nosocomial diarrhoeal diseases in elderly patients after treatment with antimicrobial agents. The aim of this study was to investigate the antimicrobial sensitivity of isolates from primary and from recurrent *C. difficile* infection (CDI) as well as the microbial factors that may contribute to the recurrences of CDI. Twenty-two patients were positive for *C. difficile* during a follow-up period and had ≥2 samples. Ten patients were colonised with the same ribotype as the primary CDI and 12 switched ribotype. All isolates were sensitive to fidaxomicin (0.008-0.125 mg/l), metronidazole (0.125-2 mg/l), vancomycin (0.125-1 mg/l), tigecycline (0.032-0.25 mg/l), fusidic acid (0.032-0.5 mg/l) and rifampicin (0.001-0.008 mg/l).

Introduction

Clostridium difficile is the major cause of nosocomial diarrhoeal diseases in elderly patients after treatment with antimicrobial agents. About 20% of the patients develop a recurrent infection after the primary episode. The aim of this study was to investigate the antimicrobial sensitivity of isolates from primary and from recurrent *C. difficile* infection (CDI) as well as the microbial factors that may contribute to the recurrences of CDI

Methods

Fifty-five patients with a primary CDI were enrolled in this study. The mean age of the patients were 74 years. Faecal samples were, when possible, collected at 1, 2, 4, 6 and 12 months after the primary infection and analysed for the presence of *C. difficile* and toxin B. All isolates were investigated by antimicrobial susceptibility tests and ribotyping

Results

Antibiotic	MIC (mg/L)
Fidaxomicin	0.008-0.125
Metronidazole	0.125-2
Vancomycin	0.125-1
Tigecycline	0.032-0.25
Fusidic acid	0.032-0.5
Linezolid	0.125-16
Moxifloxacin	0.25-32
Tetracycline	0.064-32
Rifampicin	0.001-0.008
Clindamycin	0.25- 256

Table 1. Minimum inhibitory concentration results of 63 *C. difficile* clinical isolates.

Ribotypes	Number of strains
020	8 (12.7%)
026	6 (9.5%)
023	5 (7.9%)
078	5 (7.9%)
014/077	5 (7.9%)
005	4 (6.3%)

Table 2. Most dominating ribotypes among the 63 *C. difficile* strains

Ten of the patients died during the follow-up period due to underlying diseases not directly related to CDI. Twenty-two patients were positive for *C. difficile* during the follow-up period and had ≥2 positive samples. Ten of them were colonised with the same ribotype as the primary CDI and 12 switched ribotype. The most common ribotypes were 020 (12.7%) followed by 026 (9.5%), 023 (7.9%), 078 (7.9%) and 014/077 (7.9%). In 1 patient, 4 different ribotypes were isolated during the 1-year period. Another patient changed the ribotype twice during the follow-up period. No PCR-ribotype 027 was found in any of the samples. Sixty-three isolates were analysed for antimicrobial susceptibility.

All isolates were sensitive to fidaxomicin (0.008-0.125 mg/l), metronidazole (0.125-2 mg/l), vancomycin (0.125-1 mg/l), tigecycline (0.032-0.25 mg/l), fusidic acid (0.032-0.5 mg/l) and rifampicin (0.001-0.008 mg/l). Ten isolates were resistant to linezolid (0.125-16 mg/l). Seven isolates were resistant to moxifloxacin (0.25-32 mg/l) and six isolates were resistant to tetracycline (0.064-32 mg/l). Forty-seven of the *C. difficile* isolates were resistant to clindamycin (0.25- 256 mg/l).

Conclusion

Among the 55 patients enrolled in this study, 22 were positive for *C. difficile* after the initial episode. During the study period, 12 changed the PCR-ribotype. The 078 PCR-ribotype was isolated from 5 patients. No PCR-ribotype 027 was detected in any samples.

All tested strains were sensitive to fidaxomicin, metronidazole, vancomycin, tigecycline, fusidic acid and rifampicin. Forty-seven (75%) strains were resistant to clindamycin.

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