

Short Report

Contrasting incidence of *Clostridium difficile* and other enteropathogens in AIDS patients in London and Lusaka

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Diarrhoea is the most common gastrointestinal symptom of AIDS, affecting 50–90% of patients (CHUI & OWEN, 1994). Common aetiological agents include protozoa (*Cryptosporidium parvum*, *Isospora belli*, microsporidia, *Cyclospora cayentanensis*, *Giardia intestinalis*), bacteria (*Mycobacterium avium*–*intracellulare*, *Salmonella* spp., *Shigella* spp., *Campylobacter jejuni*) and viruses (cytomegalovirus, adenovirus). *Clostridium difficile* is a Gram-positive spore-forming bacillus which has been identified as a source of exotoxins A and B (BARBUT *et al.*, 1994; POTHOUKAKIS, 1996; LYERLY *et al.*, 1998), and which is an important cause of nosocomial diarrhoea often affecting debilitated patients (CAPPELL & PHILOGENE, 1993). The most dramatic manifestation of the disease is pseudo-membranous colitis but this is the severe end of a spectrum of clinical manifestations. *C. difficile* represents a threat to HIV-infected patients in industrialized countries, usually those patients with advanced immunodeficiency receiving multiple antibiotics (CAPPELL & PHILOGENE, 1993; BARBUT *et al.*, 1994; DEMARAIS *et al.*, 1997; STARR *et al.*, 1997). Whereas the epidemiology of *C. difficile* has been well characterized in the Western countries this is not the case for sub-Saharan Africa. There has been only 1 report, from Kenya, in which *C. difficile* was not detected in stool samples of patients with AIDS-related diarrhoea (MWACHARI *et al.*, 1998). We hypothesized that differences may exist in the frequency with which *C. difficile* and other enteropathogens are detected in Africa and industrialized countries. To test this hypothesis we conducted a prospective study in Lusaka (Zambia) and compared our findings with a retrospective analysis from a London (UK) teaching hospital.

Records were reviewed of all patients attending St Bartholomew's Hospital, London, for AIDS-related chronic diarrhoea over the period 1993–95. In the University Teaching Hospital, Lusaka, samples were

analysed from 68 patients admitted for chronic diarrhoea (≥ 3 loose motions per day for more than 4 weeks) during 1996. All patients tested HIV seropositive. A stool specimen was obtained from each patient, stored at -80°C and analysed later for *C. difficile* toxin A using an ELISA for toxin A (Premier, Launch Diagnostics, Longfield, Kent, UK). A second sample was analysed for other enteropathogens. Microbial aetiology of persistent diarrhoea in London compared to Lusaka is shown in the Table.

None of 68 Zambian patients with persistent diarrhoea had *C. difficile* toxin in stool, although test controls were positive, but this infection was common in London AIDS patients. No *Isospora belli* was detected in London subjects, which we assume is a reflection of geographical and environmental factors as this organism is infrequently detected in the industrialized world. Our findings with respect to *C. difficile* are similar to those reported by MWACHARI *et al.* (1998) from Kenya.

We believe that the selection pressure for development of antibiotic resistance is likely to be high in AIDS patients in industrialized countries because of widespread antibiotic use for treatment and prophylaxis, and that this selection pressure explains the difference in prevalence observed. Co-trimoxazole is in common use in London for prophylaxis of *Pneumocystis carinii* infection, and treatment courses for opportunistic infections may be prolonged. In African AIDS patients the selection pressure is probably less intense despite the almost unregulated availability of antibiotics on the open market, as prophylactic use is uncommon, the range of available antibiotics is limited, and treatment courses are often short as prescribers and patients try to limit costs. It is also possible that use of co-trimoxazole for *P. carinii* prophylaxis contributes to the low prevalence of infection with *I. belli* in London (PAPE *et al.*, 1989).

These data show that differences in enteropathogen profile exist between the 2 geographical areas. *C. difficile* does not appear to be aetiological involved in AIDS-related diarrhoea in Lusaka, in contrast to the situation in London.

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Table. Prevalence of enteropathogens in AIDS-related diarrhoea in London and Lusaka

Organism	London (n = 126)	Lusaka (n = 68)	P
<i>Clostridium difficile</i>	14 (11%)	0	0.003
<i>Giardia intestinalis</i>	4 (3%)	0	NS
<i>Salmonella</i> spp.	0	3 (4%)	NS
<i>Shigella</i> spp.	0	5 (7%)	NS
<i>Cryptosporidium parvum</i>	8 (6%)	4 (6%)	NS
Microsporidia	8 (6%)	11 (16%)	0.05
<i>Isospora belli</i>	0	25 (37%)	<0.001

P calculated by Fisher's exact test; NS, not significant (i.e., $P > 0.05$).

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