

***Clostridium difficile* associated diarrhoea: how good are nurses at identifying the disease?**

SIR—*Clostridium difficile* (CD) associated diarrhoea is a significant cause of morbidity and mortality among older hospital inpatients, and prolonged hospital care leads to a substantial cost for the NHS [1, 2]. Early diagnosis and treatment of the condition is crucial to prevent its spread to other patients. Once suspected on clinical grounds the diagnosis can be confirmed using tests for CD toxin, but test results inevitably take time to reach the ward. Nurses are often confident of the diagnosis even before such laboratory confirmation.

In a prospective study we considered the clinical features nurses rely on when identifying CD infection, and assessed the accuracy of their predictions.

Over a three month period we registered all stool samples received in the microbiology laboratory of a teaching hospital. We identified all CD toxin tests requested by medical and trauma wards. Before performing the CD toxin test we visited the referring ward and interviewed nursing staff. We recorded the patient's clinical history, details of their diarrhoeal illness, and whether nurses expected that the laboratory test result would be positive or negative.

Over this period the laboratory tested 81 stool samples. Patients' ages ranged from 29 to 97 (mean 76) years. Forty-five (56%) were female. There was no outbreak during the study and only sporadic cases were considered. Fifty-four patients were taking or had recently received antibiotics. Thirty (56%) of these tested positive for CD toxin, compared to 7 (26%) of the 27 patients who had not received antibiotics.

Staff nurses correctly predicted a positive CD toxin test result in 31 of 37 cases; a sensitivity of 84% and specificity of 77%. Recent use of antibiotics, the presence

Letters to the Editor

Table 1. Frequency of clinical features among 81 patients with diarrhoea, and each clinical feature's ability to predict a positive CD toxin test result

	Number of subjects	CD positive	OR	95% CI	<i>P</i>
Age more than 70 years	61 (75%)	51%	1.70	0.87–3.31	
Diarrhoea on admission	17 (21%)	35%	0.72	0.36–1.45	
Aperient use	10 (12%)	20%	0.40	0.11–1.43	
Recent antibiotic use	54 (67%)	56%	2.14	1.08–4.23	**
Abdominal distension	7 (9%)	71%	1.65	0.96–2.82	
Abdominal pain	12 (15%)	50%	1.11	0.60–2.07	
Fever	7 (9%)	86%	2.00	1.36–3.10	*
Characteristic odour	35 (43%)	77%	3.54	1.99–6.32	**
Green stools	16 (20%)	63%	1.50	0.93–2.42	
Blood in the stools	3 (4%)	67%	1.48	0.64–3.43	
Mucus in the stools	25 (31%)	64%	1.70	1.09–2.67	
Nurses predict positive CD toxin result	41 (51%)	76%	5.05	2.36–10.75	**

Odds Ratios, 95% confidence interval and significance * $P < 0.05$, ** $P < 0.01$.

of fever, and nurses' identification of a characteristic 'Clostridial' odour were statistically significant predictors of the presence of CD infection (Table 1). Logistic regression confirmed the presence of a 'Clostridial' odour, and recent use of antibiotics to be independent predictors of the presence of CD infection ($P < 0.05$).

Early detection of CD infection can prevent disease, morbidity, mortality, and spread. Nurses were often confident of the diagnosis at the onset of the diarrhoea, and our study confirms that they identify the presence of CD with considerable accuracy.

Infection control measures must be instituted in any possible case of infective diarrhoea. But it appears that nurses can identify the diagnosis of CD infection with sufficient accuracy to justify more specific measures such as the withdrawal of causative antibiotics, or perhaps the initiation of metronidazole treatment before laboratory confirmation is received.

ANTONY JOHANSEN, SANJEEV VASISHTA, PAUL EDISON,
IAN HOSEIN¹

Departments of Geriatric Medicine, and

¹Infection Prevention and Control, University Hospital of
Wales, Heath Park, Cardiff, CF14 4XW, UK

Email: fiant@ukonline.co.uk

1. MacGowan AP, Brown I, Feeney R *et al.* *Clostridium difficile* associated diarrhoea and length of hospital stay. *J Hosp Infect* 1995; 31: 241–4.

2. Wilcox MH, Cunniffe JG, Trundle C, Redpath C. Financial burden of hospital-acquired *Clostridium difficile* infection. *J Hosp Infect* 1996; 34: 23–30.