**Clostridium difficile** colitis associated with chronic renal failure

Sir,

In their recent article on *Clostridium difficile* colitis associated with chronic renal failure, Cunney and associates [1] reported a 4-fold increase in the incidence of this condition in patients admitted to their nephrology unit as compared to other areas of the hospital. Thirty-two cases of symptomatic infection were identified in their unit over a 24-month period. Most of these patients had a history of recent antibiotic therapy. Eighteen patients died and the infection was considered to be the principle cause of death in five and the sole cause in one. The diagnosis of *C. difficile* colitis was significantly delayed in four patients who had no diarrhoea. In two patients the diagnosis was made post-mortem and one of them did not have diarrhoea. In this context, we had encountered such a situation. Our patient, in fact, had constipation and *C. difficile* colitis was not diagnosed until his death.

The patient was a 44-year-old white man transferred to our service in November 1989 in severe renal failure. Two weeks prior to the transfer, he had received erythromycin for a suspected chest infection and ferrous gluconate for anaemia. Transient diarrhoea developed with 4–5 black stools attributed to iron therapy. On arrival he was not in distress. BP was 190/110. Abdomen was soft with good bowel sounds. Blood chemistry confirmed severe renal failure (serum creatinine 2167 μM) with acidosis, hyperkalaemia and hyperphosphataemia. Sodium polystyrene sulphonate was given orally and haemodialysis was commenced the next day. Basaljel and nifedipine were prescribed. Ultrasonography was consistent with end-stage renal disease (ESRD) and a Tenckhoff catheter was inserted for CAPD. An AV graft was also created. Over the next 2 days the patient was not passing gas but he had no pain or discomfort. The abdomen remained soft and bowel sounds were present. On the third day, constipation was noted and oral X-Prep was given without effect. On the fourth day, peritonitis was diagnosed on the basis of diffuse abdominal pain, leukocytosis, and cloudy peritoneal fluid. Despite prompt treatment he went into shock and was unresponsive to fluid, colloid and IV antibiotics, and was transferred to ICU where he died a day later. Autopsy revealed diffuse severe pseudomembranous colitis. Prior to his death he was noted to have small, frequent, liquid, yellowish-brown stools from which *C. difficile* and toxin were later isolated. The diagnosis of *C. difficile* infection was never made during life despite colonoscopy, radiologic examinations and surgical exploration.

We concur with Cunney et al. that *C. difficile* colitis with diarrhoea is more common in ESRD patients as they often require hospitalization and receive antibiotics for infectious problems. This patient, however, had constipation, likely as a side effect of sodium polystyrene sulphonate and basajel, and *C. difficile* colitis was not suspected. Diarrhoea was a late event. Cunney et al. did not elaborate on how their patient with *C. difficile* colitis, but without diarrhoea, died. In our patient, we surmise that because of his constipation he was not able to clear *C. difficile* toxin(s), possibly resulting in systemic toxaemia and cardiovascular collapse, which was a prominent feature of his illness.

Patients with *C. difficile* colitis may occasionally present with an acute abdomen and fulminant, life-threatening disease with paralytic ileus and colonic distention that can result in a paradoxical decrease in diarrhea [2]. This is probably not well recognized. *Clostridium difficile* colitis should be suspected in any patient with ESRD, who has acute abdominal symptoms with or without diarrhoea.

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**Reply**

Sir,

Kovithavongs describes a case of fatal *Clostridium difficile* colitis, which was only diagnosed post-mortem, in a patient with end-stage renal failure. As he points out we had a similar case in our series [1]. Our patient developed abdominal pain, without diarrhoea, 7 days after admission for atrial fibrillation and acute, on chronic, renal failure. He had received cefotaxime prior to admission. Intravenous metronidazole was started 2 days after the onset of colitis but, despite this, his colitis worsened and he died on day 18 of his admission. *Clostridium difficile* colitis was suspected prior to his death, but was only confirmed at post-mortem examination. *Clostridium difficile* colitis was considered to be the principle cause of death in this patient.

As Kovithavongs points out constipation may have been a factor in the fulminant clinical course in his patient. Drugs causing constipation have been associated with severe *C. difficile* colitis. Right-sided colitis, often presenting with little or no diarrhoea, seems to occur more frequently in patients who are given opiates or antiperistaltic agents [2]. Burke et al. described a case of *C. difficile* colitis with toxic megacolon, which presented without diarrhoea, in which opiate administration may have contributed to this type of presentation [3]. Rubin et al. compared severe and mild cases of *C. difficile* colitis. They found that, in addition to underlying malignancy, chronic lung disease, immunosuppressives and chronic renal failure, antiperistaltics and narcotics were risk factors for severe disease [4].

Bowel ischaemia and altered intestinal motility are known to be associated with chronic renal failure [5]. Thus, in addition to drugs effecting intestinal motility, chronic renal...
failure itself may contribute to such non-diarrhoeal presentations. Kovithavongs suggests that systemic absorption of toxins may have contributed to his patient's cardiovascular collapse. The possible role of systemic absorption of C. difficile toxin is supported by reports of haemolytic uraemic syndrome associated with C. difficile colitis [6]. Animal studies have also demonstrated cardiac toxicity from C. difficile toxins A and B [7]. Systemic absorption of toxin has been demonstrated in fatal cases of C. difficile colitis in children with underlying haematological malignancies and Hirschsprung's disease [8].

Because of the lack of diarrhoea in such cases the diagnosis of C. difficile colitis may not be considered. Delay in diagnosis has been identified as a risk factor for mortality in C. difficile colitis [9,10], though we did not find this to be the case in our series.

The delay in diagnosis and possible systemic effects of absorbed toxin, resulting from colitis presenting without diarrhoea, combine to increase the mortality from C. difficile colitis. When this occurs in the setting of chronic renal failure it is not surprising that the mortality is so high in this patient population.

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