TUBERCULOSIS IN PERITONEAL DIALYSIS PATIENTS

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SYNOPSIS

The prevalence of tuberculosis among 105 peritoneal dialysis patients was 7.6%. Extrapulmonary tuberculosis which included tuberculosis of lymph nodes and the skin occurred in 3.8% of the patients. Patients with extrapulmonary tuberculosis had no evidence of pulmonary tuberculosis. Fever was the commonest presentation which might be confused with peritonitis. Despite the known immunosuppressive effects of chronic uraemia, tuberculin test was positive in 5 out of 7 patients. Treatment with a combination of isoniazid (mean daily dose, 5.9 mg/kg), ethambutol (mean daily dose, 8.0 mg/kg) and rifampicin (mean daily dose 8.4 mg/kg) led to rapid resolution of symptoms with no patient mortality.

SING MED J. 1988; 29:103–104

INTRODUCTION

Several groups of investigators (1–3) have reported a high prevalence of tuberculosis among haemodialysis patients which is associated with a high mortality (1). We hence review our experience of tuberculosis among peritoneal dialysis patients.

PATIENTS, METHOD AND RESULTS

From March 1983 to December 1984, 8 patients on our peritoneal dialysis programme had tuberculosis. The diagnosis of tuberculosis was made in four patients on CAPD, in 2 on maintenance intermittent peritoneal dialysis, in 1 (patient CLM) who was just about to commence CAPD and in 1 (patient LOH) who had a renal transplant after CAPD had failed. The total population of peritoneal dialysis patients was 105, giving a prevalence of 7.6%. The clinical characteristics of the patients and the antituberculous treatment are summarised in the accompanying table (Table 1a and 1b).

Extrapulmonary tuberculosis occurred in 4 patients, one of whom had recurrent erythematous nodules on all four extremities. The patient with mesenteric tuberculous lymphadenitis developed fever and abdominal pain 4 months after renal transplantation. Four patients had pulmonary tuberculosis although sputum culture for acid-fast bacilli was positive only in one. None of the 4 patients with extrapulmonary tuberculosis had radiological evidence of tuberculous involvement of the lungs. Except for the patient who had a renal transplant, none had been treated with immunosuppressive agents. All patients presented with fever. Tuberculin test (0.01 ml Tuberculin PPD; strength: 10 iu per 0.1 ml) was performed in 7 patients and was positive (defined as an induration of 10 mm or more) in 5. Although granulomas were demonstrated histologically in lymph node specimens and excised skin nodules, acid-fast bacilli was seen only in the renal transplant patient with mesenteric lymphadenitis. All patients received isoniazid, rifampicin and ethambutol, the latter for 2 months. The patient with mesenteric lymphadenitis was also given pyrazinamide which was discontinued after 2 weeks because of side effects. Antituberculous treatment was continued in the form of isoniazid and rifampicin in all patients. The response was good. Fever disappeared. In one patient (WKK) with cervical lymphadenopathy the lymph node resolved before it was biopsied. The skin eruptions did not recur and in the patient with mesenteric lymphadenitis the size of the lymph nodes as demonstrated on gallium scanning diminished significantly. All patients survived.

DISCUSSION

The prevalence of 7.6% of tuberculosis among peritoneal dialysis patients was comparable to that reported for haemodialysis patients (1–3) and is much higher than that among the general population in Hong Kong which was 0.137% for the year 1983 (4). Even more striking was the high prevalence of extrapulmonary tuberculosis which was 3.8% as compared to 0.006% for the general population (4). It is also interesting that none of the patients with extrapulmonary tuberculosis had radiological evidence of pulmonary tuberculosis. Perhaps the effect of uraemia on the immunological competence of the patients (5) predisposes to the high prevalence of the extrapulmonary manifestations (1). The diagnosis of tuberculosis in peritoneal dialysis patients can be a problem. The commonest presentation being fever may be erroneously attributed to peritonitis. This happened with WKK who had bacterial peritonitis with fever initially responding to antibiotics. The fever recurred shortly afterwards and cervical lymphadenopathy was then detected. A normal radiograph of the chest does not exclude tuberculosis. A meticulous search for lymphadenopathy may reveal rewarding results. Despite the well-known immunosuppressive effect of chronic uraemia (5), the tuberculin test appears to have a rather high diagnostic yield. If the diagnosis of tuberculosis is seriously entertained, a therapeutic trial with antituberculous drugs is indicated. The dose of ethambutol, however, has to be reduced and we have not encountered any serious complications using a dose of 4 to 8.9 mg/kg/day for 2 months. A present, the required length of treatment is not certain. We have arbitrarily treated for 1 year. Our study demonstrates that diagnosed and treated early, tuberculosis in peritoneal dialysis patients need not carry an increased mortality.

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TABLE 1a
TUBERCULOSIS IN PERITONEAL DIALYSIS PATIENTS: PATIENT CHARACTERISTICS

Patient	Sex/age	Renal disease	Site of TB	PPD (1 unit)	Diagnosis
WKK	M/37	Obstructive uropathy	Cervical LN	20 mm	Therapeutic response
LKK	M/35	IgA GN	Pleural	20 mm	Therapeutic response
MPH	M/22	Crescentic GN	Pulmonary	ND	Sputum culture
CW	M/64	Diabetic nephropathy	Pulmonary	6 mm	Therapeutic response
LSF	F/50	CRF (unknown) Left nephrectomy	Pulmonary	18 mm	Therapeutic response
KSH	F/63	Diabetic nephropathy	Skin	0 mm	Skin biopsy + therapeutic response
LOH	F/63	IgA GN	Mesenteric LN	0 mm	LN histology at laparotomy
CLM	F/45	Pyelonephritis	Cervical LN	7 mm	LN biopsy

TABLE 1b
TUBERCULOSIS IN PERITONEAL DIALYSIS PATIENTS: TREATMENT AND OUTCOME

Patient	INAH	Rifampicin	Ethambutol	Pyrazinamide	Response
WKK	300 mg/day (6.4 mg/kg/day)	600 mg/day (4.3 mg/kg/day)	400 mg/day (8.5 mg/kg/day)	— —	Defervescence in 1 wk. Resolution of cervical LN
LKK	200 mg/day (4.3 mg/kg/day)	450 mg/day (9.6 mg/kg/day)	200 mg/day (4.3 mg/kg/day)	— —	Resolution of pleural effusion in 6 months
MPH	300 mg/day (7.5 mg/kg/day)	300 mg/day (7.5 mg/kg/day)	300 mg/day (7.5 mg/kg/day)	— —	Sputum culture negative in 4 wks
CW	200 mg/day (4.0 mg/kg/day)	450 mg/day (9.2 mg/kg/day)	200 mg/day (4.0 mg/kg/day)	— —	Resolution of fever in 2 wks. Marked improvement in chest in 6 months
LSF	300 mg/day (6.6 mg/kg/day)	450 mg/day (10.0 mg/kg/day)	400 mg/day (8.9 mg/kg/day)	— —	Defervescence in 1 wk. Rt apical mottling decreased
KSH	300 mg/day (5.9 mg/kg/day)	450 mg/day (8.8 mg/kg/day)	450 mg/day (7.8 mg/kg/day)	— —	Fever and recurrent skin eruptions disappeared in 2 months
LOH	300 mg/day (6.0 mg/kg/day)	450 mg/day (9.0 mg/kg/day)	750 mg/day (15.0 mg/kg/day)	1500 mg/day (30.0 mg/kg/day)	Defervescence in 4 wks. Decrease in mesenteric LN
CLM	300 mg/day	450 mg/day	400 mg/day	—	Decrease in size of cervical LN

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