Case Report

Cryptosporidiosis in a haemodialysis patient with depressed CD4+ T cell count: successful treatment with azithromycin

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Key words: azithromycin; CD4 cells; cryptosporidiosis; haemodialysis; immunodeficiency; opportunistic infections

Introduction

There is increasing evidence that patients on long-term haemodialysis (HD) have an impaired immune response. The number of circulating lymphocytes in uraemic patients is generally found to be reduced. The abnormality affects both CD4+ and CD8+ T cells so that the CD4/CD8 ratio is in the normal range [1]. The increased susceptibility to infections is manifested by the high occurrence of tuberculosis and viral infections in dialysis units. Opportunistic infections are rare but serious problems. We report a case of an elderly HCV-seropositive and HIV-seronegative woman on HD with depressed CD4+ T cell count who developed cryptosporidiosis. We are not aware of other reports of cryptosporidiosis in HIV-seronegative dialysis patients.

Case

A 76-year-old woman with end-stage renal failure secondary to chronic interstitial nephropathy treated with HD in our centre since 1989 presented with mild abdominal pain of 1 week duration and pruritus. She had a history of chronic obstructive bronchopathy with recurrent respiratory infections, hiatus hernia, and cholelithiasis. The physical examination was unrevealing. The patient was treated with dialysis three times a week with hemophan and bicarbonate dialysate. The dialysis was adequate with Kt/V of 1.03 and the patient was on erythropoietin therapy. The haemogram revealed haemoglobin 10.7 g/dl and total white blood cell 4900/µl (neutrophils 2360/µl, lymphocytes 1330/µl, monocytes 531/µl, eosinophils 637/µl). Eosinophilia not previously present was detected. Protein profile was normal with mild increase in α2-globulin, and with normal IgG, IgA, IgM, and IgE. iPTH was 44 pg/ml with adequate calcium–phosphorus product. The patient was HIV seronegative and was positive for anti-HBsAg and anti-HBcAg antibodies. The presence of HCV infection (viral RNA) was confirmed by using the polymerase chain reaction. Liver function tests were normal. Peripheral blood lymphoid subsets were determined by flow cytometry. There is increasing evidence that patients on long-term haemodialysis (HD) have an impaired immune response. The number of circulating lymphocytes in uraemic patients is generally found to be reduced. The abnormality affects both CD4+ and CD8+ T cells so that the CD4/CD8 ratio is in the normal range [1]. The increased susceptibility to infections is manifested by the high occurrence of tuberculosis and viral infections in dialysis units. Opportunistic infections are rare but serious problems. We report a case of an elderly HCV-seropositive and HIV-seronegative woman on HD with depressed CD4+ T cell count who developed cryptosporidiosis. We are not aware of other reports of cryptosporidiosis in HIV-seronegative dialysis patients.

Discussion

Cryptosporidium parvum is a spore-forming protozoon that infects epithelial cells in the upper portion of the small intestine. The clinical range of cryptosporidiosis varies from asymptomatic carrier to severe diarrhoea with dehydration and malabsorption [2]. In immunocompetent individuals, the disease is self-limiting, whereas in immunocompromised patients it usually causes persistent and severe disease. The immune competency of the host, especially cellular immunity status, is the most important determining factor of length and severity of the infection. In AIDS patients, the number of CD4 cells determines the course of the infection [3]. Although most of the cases described belong to AIDS patients, severe infections have also been reported in other states of immunodeficiency [4]. It is possible that these patients are unable to eradicate the oocysts, and that endogenous sporulation may cause autoinfection. A subclinical infection and the carrier state, may become symptomatic in situations of higher immunodepression. In the case reported, the clinical manifestations were scarcely expressive and eosinophilia was

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To our knowledge, this is the first reported case of cryptosporidiosis in a HIV-seronegative HD patient. Only Abraham has reported a case of gastroenteritis caused by cryptosporidium in an HIV-infected patient on CAPD [5].

In AIDS patients paromomycin is recommended as the drug of first choice [6] although relapse after suspension of treatment is frequent and leads to long-term therapy. The causes of therapeutic failure may be due to an inadequate concentration of the drug in the intestinal lumen in patients with severe diarrhoea, or to extraintestinal location of the protozoan in the biliary tract where paromomycin is ineffective. One of the most interesting aspects of azithromycin is its ability to reach a high concentration in bile, up to 100 times more than in plasma, as well as its transintestinal elimination which would also enable the eradication of cryptosporidium in its physiological niche [7]. Azithromycin is used for prophylaxis and treatment of opportunistic infections in AIDS patients due to its prolonged terminal half-life of 68 h and excellent intracellular penetration and persistence [8].

Although HD is not considered to be associated with an inversion of CD4:CD8 ratio [1], HD patients with a greater decrease in CD4 lymphocytes and a state of cellular immunodeficiency do exist. These patients are incapable of eradicating opportunistic infections, leading to a relatively asymptomatic course of infections and a chronic carrier state. In the case reported, azithromycin was efficient in the eradication of cryptosporidium and may be useful in other opportunistic infections in HD patients.

References


Received for publication: 1.4.98
Accepted in revised form: 19.6.98