Human Immunodeficiency Virus Infection in Patients on Maintenance Dialysis

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Dear Sir,

Seven years ago we asked ourselves what was the best dialysis schedule for patients with HIV infection [1]. In 1994, we reviewed our experience with HIV-positive patients on chronic maintenance dialysis (D). Nine patients with HIV infection were treated on dialysis, between June 1987 and June 1993, in the Gregorio Marañón Hospital in Madrid. This Hospital attended 'Health Area 1' of Madrid: 627,000 inhabitants and 285 patients on maintenance dialysis. In 5 of 9 patients, HIV antibodies (Ab) were detected in June 1987, the first time we tested all patients on D, for HIV Ab (group 1). Since June 1987, all patients on dialysis have been tested for circulating anti-HIV Ab, by ELISA, every 4 months. New patients are also tested for HIV Ab when they are included in supportive dialysis therapy. If serum is positive by the ELISA method in two samples, a Western blot assay is performed (HIV+). PCR is used in doubtful cases. Ab screening for HIV infection by standard ELISA sometimes yields false-positive results in patients with renal failure (2); therefore, it is especially important to confirm HIV+ with the Western Blot test [3, 4]. Since 1987, blood and organ donors are tested systematically in our hospital.

Between 1987 and 1993, only 4 patients who were HIV seropositive before developing renal insufficiency were included into the D program (group 2). Access to dialysis treatment has not been limited for these patients.

The proportion between HIV+/HIV- patients who began D during the last 6 years was 1.14%. The amount of HIV+ patients who underwent D, with respect to all HIV+ patients of our hospital, was 0.2%. The prevalence of HIV seropositive patients on dialysis decreased from 2.1% in 1987 to 0.34% in 1993. The high mortality rate after AIDS diagnosis of these patients, 63% annually, explains that decrease.

HIV+ patients on dialysis are younger than our general dialysis population. The mean age of our dialysis patients is 55 years old; only 1 HIV+ patient is 56 years old. Four of 5 HIV+ patients on chronic D in group 1 are females; however, all HIV+ patients in group 2 are males.

Glomerulone-phritis is the most common cause of end-stage renal disease in these patients.

Patients on chronic D prior to HIV diagnosis were a mean of 75 months on this therapy before

seropositive diagnosis was made and they had received between 8 and 45 blood transfusions. Two of them had a previous kidney transplantation which had failed. The risk factor for HIV infection in 3 patients of group 2 was parenteral drug use, and the other was homosexuality. We initially indicated continuous ambulatory peritoneal dialysis (CAPD) as the first choice for renal replacement therapy for end-stage renal disease in these patients [5, 6]; 2 of them underwent CAPD, but they transferred to hemodialysis due to peritonitis. An isolated hemodialysis unit for these patients was created. Routine precautions are followed in the hemodialysis unit [7, 8].

All of them developed AIDS, with constitutional syndrome and diarrhea. All patients, except the last, died during follow-up. Five of the deaths were due to infections: *Staphylococcus aureus* in 2 patients, *Pneumocystis carinii* in one [1], *Candida albicans* in 1, and bilateral pneumonia in the 5th. The other deaths were due to hemorrhagic shock, discontinuance of dialysis and sudden death. Two patients were treated with zidovudine without any improvement in the evolution of their disease.

We conclude that the proportion of HIV+ patients who need chronic dialysis is very low. Their clinical outcome is worse and their death rate is higher than HIV+ patients with AIDS and normal renal function (63 vs. 34%). When blood and organs are tested for HIV, risk factors for HIV infection in dialysis patients are similar to the general population. There was no nosocomial transmission and this appears unlikely when routine precautions are followed. Most of the patients developed constitutional syndrome and diarrhea and died of infection. Half survival time is short: 10 months from HIV+ diagnosis on dialysis. Patients with clinical HIV infection are considered contraindicated for transplantation. HIV screening in blood and organ donors is necessary to avoid this method of transmission.

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