Artigo Original

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Demographic and clinical characteristics of human immunodeficiency virus-infected patients receiving dialysis in Portugal: a Nationwide Multicentre Survey

José António Lopes[1], Fernando Abreu[2], Edgar de Almeida[1], Berta Carvalho[3], Carmen do Carmo[4], Dulce Carvalho[5], Engrácia Barber[6], Fátima Costa[7], Gil Silva[8], Helena Boquinhas[9], João Graça Silva[10], Luis Inchaustegui[11], Lurdes Dias[12], Madalena Batista[13], Pedro Neves[14], Teresa Mendes[7]

[1]Nephrology Department, Hospital de Santa Maria, Lisboa, Portugal, [2]Nephrology Department, Centro Hospitalar do Médio Tejo, Torres Novas, Portugal, [3]Nephrology Department, Hospital de São João, Porto, Portugal, [4]Nephrology Department, Hospitais da Universidade de Coimbra, Coimbra, Portugal, [5]Nephrology Department, Hospital Garcia de Orta, Almada, Portugal, [6]Nephrology Department, Hospital de Curry Cabral, Lisboa, Portugal, [7]Nephrology Department, Centro Hospitalar de Coimbra, Covões, Portugal, [8]Nephrology Department, Centro Hospitalar do Funchal, Funchal, Portugal, [9]Nephrology Department, Hospital de Santa Cruz, Lisboa, Portugal, [10]Nephrology Department, Hospital dos SAMS, Lisboa, Portugal, [11]Nephrology Department, Hospital Fernando da Fonseca, Amadora, Portugal, [12]Nephrology Department, Hospital de Santo Espírito, Angra do Heroísmo, Portugal, [13]Nephrology Department, Hospital do Divino Espírito Santo, Ponta Delgada, Portugal, [14]Fresenius Medical Care-Faro, Faro, Portugal

SUMMARY

Background. Data on human immunodeficiency virus (HIV) infected patients receiving dialysis in Portugal is scarce.

Methods. This nationwide epidemiological survey retrospectively evaluates HIV-infected patients on chronic dialysis in Portugal between 1997 and 2002.

Results. Sixty-six patients were evaluated (mean age: 39.1±1.6 years, 47 men, 35 black African). Sixty-two patients started dialysis and 4 patients who were receiving dialysis had HIV seroconversion. Eighty-five percent of patients were treated in Lisbon. The annual incidence of HIV-infected patients on chronic dialysis was 0.5% in 1997 and 0.9% in 2002. Seventy-eight percent of patients were HIV-1 infected , 13% had hepatitis B and 31% hepatitis C. Sexual contact was the mode of transmission of HIV in 53% of cases. Four patients had biopsy-proved HIV-associated nephropathy. Ninety-five percent of patients were on chronic hemodialysis. Fifty percent of patients had acquired immunodefi-

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ciency syndrome. At follow-up, 12 patients died. HIV-infected CKD patient survival after starting dialysis was 80% at 3 years.

Conclusion. The incidence of HIV-infected patients on chronic dialysis in Portugal has almost doubled. Widespread use of highly active antiretroviral therapy and the increasing number of black Africans from former overseas Portuguese colonies now living in Portugal are possible reasons for this large increase.

Key-words: Dialysis, Epidemiology, HIV

INTRODUCTION

The growing epidemic of the human immunodeficiency virus (HIV) infection has resulted in a large increase in the number of patients developing chronic kidney disease (CKD), requiring maintenance dialysis. HIV infection in patients on maintenance dialysis could result from infection prior to the beginning of dialysis or from the seroconversion after the initiation of dialysis. Chronic kidney disease in HIV-infected patients is a result of HIV-associated nephropathy (HIVAN) or an unrelated intrinsic primary or secondary renal disease[1].

HIVAN is a well known condition characterized by progressive glomerulosclerosis with "malignant" nephrotic syndrome and progression to uraemia. It is the first cause of CKD in HIV-infected patients[2] and is more frequent in non-Caucasian patients[3]. In addition, non-HIV CKD patients on renal replacement therapy may acquire HIV infection from sexual contact, needle sharing and blood transfusions[1]. HIV transmission in dialysis centres and from transplanted organs is almost inexistent[1].

There are few epidemiological studies focusing on HIV infection in dialysis patients[4-7]. In order to evaluate the demographic and clinical characteristics of HIV-infected patients receiving dialysis in Portugal we undertook a nationwide epidemiological study involving the dialysis units providing care for these patients.

SUBJECTS AND METHODS

This retrospective study describes the demographic and clinical characteristics of HIV-infected patients with CKD receiving dialysis in Portugal between January 1997 and December 2002.

A questionnaire was mailed in January 2003 to the medical directors of the Portuguese dialysis units treating HIV-infected patients. Patients were divided into two groups: Group 1- HIV-infected CKD patients at initiation of chronic dialysis; group 2- CKD patients on chronic dialysis who had HIV seroconversion. Epidemiological data (age, gender, race, nationality), clinical and laboratorial HIV-related variables (date of diagnosis, mode of transmission, type of HIV, hepatitis B and hepatitis C coinfection, and the stage of HIV disease according to the Centers for Disease Control and Prevention (CDC) classification, CD4+ lymphocyte count, HIV viral load and antiretroviral therapy at the time of data collection or the last follow-up) and CKD and dialysis related information (date of diagnosis and aetiology of renal disease, dialysis modality, date of initial dialysis, date and cause of death) were collected from dialysis units databases.

Statistical analysis

All continuous variables are presented as mean ± standard deviation. Categorical variables are presented as percentage of number of cases.

RESULTS

From January 1997 - December 2002, 66 HIV-infected patients (groups 1 and 2) were treated in 14 dialysis units (Figure 1). Lisbon had the highest number of units (6 units) and patients (56 patients). The annual incidence of HIV-infected patients on chronic dialysis was 0.5% in 1997, 0.4% in 1998, 0.3% in 1999, 0.7% in 2000, 0.6% in 2001 and 0.9% in 2002 (Table 1).

Table 2 summarizes the clinical characteristics of patients studied. At the initiation of dialysis or at the seroconversion, the mean age of the patients was 39.1±1.6 years, and 71% were men. Thirty-five (53%) patients were black African immigrants from Portuguese Speaking African Countries, all of them being treated in Lis-

Table I
Total number of patients and HIV-infected patients starting dialysis / year

Year	Patients starting dialysis	HIV-infected patients starting dialysis
1997	1640	8 (0.5%)
1998	1760	7 (0.4%)
1999	1944	6 (0.3%)
2000	1895	14 (0.7%)
2001	2051	13 (0.6%)
2002	2084	18 (0.9%)

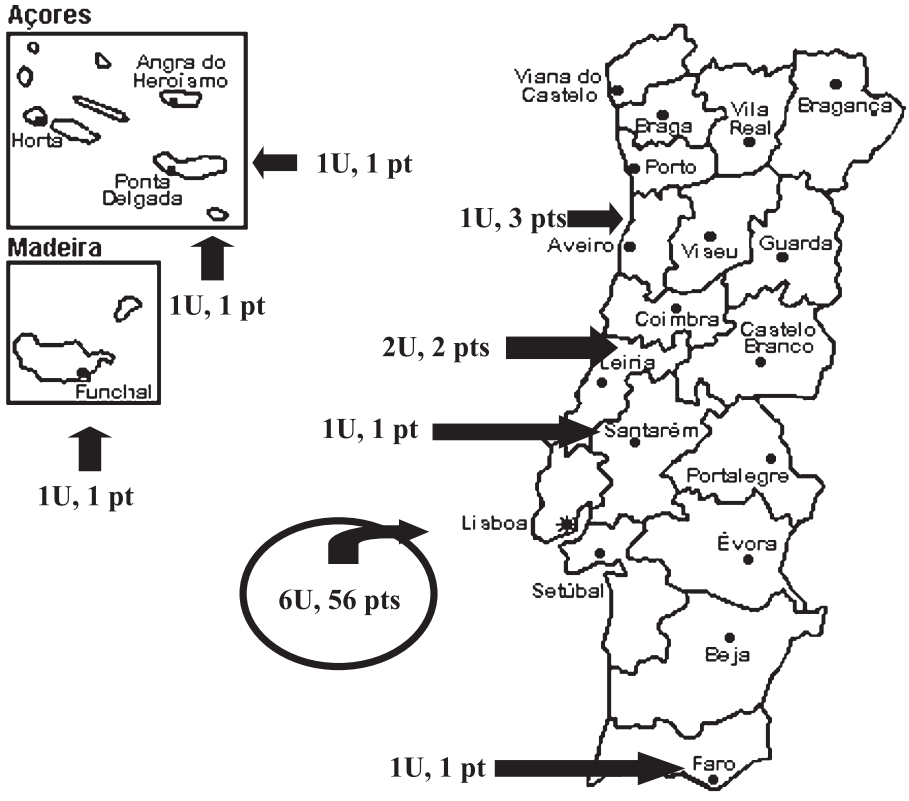

Figure 1 – Geographic distribution of dialysis units and HIV-infected patients on maintenance dialysis in Portugal. U- Units; pt(s)- patient(s)

Table II

Clinical characteristics of HIV-infected patients on maintenance dialysis in Portugal. *Among patients with available results ([a]n=62, [b]n=64, [c]n=58, [d]n=51, [e]n=36, [f]n=46)

Variable		n
Race (black African / caucasian)		35 / 31
Gender (male / female)		47 / 19
Risk behaviour for HIV-acquisition		
	Heterosexuality	29
	IV drug exposure	16
	Homo / bisexuality	6
	Transfusion	2
	Unknown	13
Dialysis modality (haemodialysis / peritoneal dialysis)		63 / 3
*Hepatitis C antibody (positive / negative)[a]		19 / 43
*Hepatitis B surface antigen (positive / negative)[a]		8 / 54
*Serotype of HIV[b]		
	HIV-1	52
	HIV-2	9
	HIV-1 + HIV-2	3
*CD4+ lymphocyte count (cells/mL)[c]		
	<200	18
	200-500	30
	>500	10
*RNA viral load (copies/mL)[d]		
	≤55.000	45
	>55.000	6
*CDC-stage of HIV-infection[e]		
	A	14
	B	4
	C	18
*HAART (yes / no)[f]		30 / 16

bon. In 22% of cases, the time elapsing since their arrival in Portugal and the beginning of dialysis was less than one month.

Between January 1997 and December 2002, 62 HIV-infected CKD patients started dialysis (group 1). The average length of time from HIV infection diagnosis to the beginning of renal replacement therapy was 5.2±1.7 years, but in 35% of patients HIV infection was documented in routine serologic evaluation always performed at first dialysis. The aetiology of CKD was diabetes mellitus in 10 cases, chronic glomerulonephritis in 9, hypertension in 5, biopsy-proved HIVAN in 4, autosomal dominant polycystic kidney disease in 2, acute tubular necrosis with no renal function recovery in 1 and it was unknown in 31. In group 1, patient survival after starting dialysis was 87.6% at 1 year, 81.7% at 2 years and 80% at 3 years.

Four patients on maintenance hemodialysis had HIV seroconversion (group 2). The aetiology of CKD was diabetes mellitus in 3 patients and autosomal dominant polycystic kidney disease in 1 patient. The mean time from the initiation of dialysis and HIV infection diagnosis was 29.8 months. In this group, the mode of transmission was heterosexual contact in 2 patients, blood transfusion in 1 and unknown in the remaining patient. At the time of seroconversion none of these patients were treated in dialysis units taking care of HIV-infected patients.

Overall, 52 patients were infected with HIV-1, 11 patients with HIV-2 and 3 patients with HIV-1 and HIV-2. Fifty percent of patients had acquired immunodeficiency syndrome (AIDS), 31% had a CD4+ lymphocyte count below 200 cells/mL and 90% had a viral load lower than 55000 copies/mL. Sixty-five percent of patients were treated with highly-active antiretroviral therapy (HAART). Three patients who had a CD4+ lymphocyte count below 200 cells/mL and 4 patients with AIDS were not on antiretroviral therapy (1 being resistant to all drugs, 2 refusing all medication and the remaining for unknown reasons). Thirteen percent of patients tested HBsAg positive, 31% had reactive antibody tests for hepatitis C and 2 patients had both hepatitis B and C coinfection. Ninety-five percent of patients were on chronic hemodialysis and the remaining were on a peritoneal dialysis programme (2 in automated peritoneal dialysis and 1 in ambulatory continuous peritoneal dialysis). At follow-up, 12 patients (11 from group 1) died. The cause of death was due to sepsis in 5 cases, cardiovascular disease in 4, cancer in 1, malnutrition in 1 and unknown cause in 1. Two patients died in 2001 and 10 in 2002.

DISCUSSION

This was the first epidemiological study performed in Portugal to evaluate the demographic and clinical characteristics of HIV-infected patients receiving dialysis.

The incidence of HIV-infected patients on chronic dialysis in Portugal almost doubled between 1997 and 2002. This data suggests that, in line with that described in other countries,[7] this population of patients is growing in number. Possible reasons for the large increase reported in our survey are the use of HAART, a better management of opportunistic infections and the increasing number of black Africans from former overseas Portuguese colonies living in Portugal. The widespread use of HAART since 1997 and a better prophylaxis and treatment of opportunistic infections have largely contributed to a better survival of HIV-infected patients, allowing them to live long enough to reach CKD. In fact, HAART has clearly changed the profile of HIV patients, improving their outcome significantly[8]. We must remember that in the current analysis all patients started dialysis during the

HAART era. In addition, there were a great proportion of black African patients from Portuguese Speaking African Countries, where HIV infection is endemic, who significantly contributed to the overall incidence of HIV-infected patients receiving dialysis. Similarly, in the United States (6,9,10) and France[5,7] there is also a great proportion of non-Caucasian patients among HIV-infected CKD patients on chronic dialysis.

Lisbon had the highest number of patients and units caring for HIV-infected patients. The prevalence of HIV infection in various dialysis units depends on the demographics of the population and tends to be greater in urban centres with a large African population[2]. In the present study, more than one half of patients were black African and all of them were undergoing dialysis in Lisbon. This data might be related to the significantly great proportion of population from former Portuguese overseas colonies now living in this city.

Only 4 patients had biopsy-proved HIVAN which is in sharp contrast with other studies[6, 11-13]. In the present study, 22% of black African patients started dialysis in the first month following their arrival to Portugal, 35% of patients had HIV infection documented at first dialysis and in one half of cases the aetiology of renal disease was unknown. These data can lead us to speculate that the lower incidence of HIVAN might be related to the great number of patients who presented with advanced CKD. Given that non-invasive tests are unable to distinguish between HIVAN and other lesions, the lower prevalence of HIVAN documented in the current study suggests an underestimation of its frequency.

Similarly to that reported in other studies,[6] the number of patients on maintenance dialysis who had HIV seroconversion was low and not related to dialysis procedures.

In our study, HIV-infected CKD patient survival after starting dialysis was 87.6% at 1 year, 81.7% at 2 years and 80% at 3 years which is concordant to other recent studies[2,10] that reported an improvement in survival of HIV-infected patients receiving dialysis. Although a number of factors have been suggested as contributing to the better prognosis of HIV-infected patients with CKD, such as a better nutritional support, more efficient dialysis delivery and correction of anaemia[1], the availability and use of HAART is most likely responsible for the improvement in survival[2].

In sum, we show that annual incidence of HIV-infected patients receiving dialysis in Portugal almost doubled between 1997 and 2002, suggesting that there is a trend towards an increasing incidence of this set of patients in the Portuguese dialysis units.

Corresponding author:
Dr José António Lopes
Hospital de Santa Maria
Nephrology Department
Av. Prof. Egas Moniz, 1639-045 Lisboa, Portugal
e-mail: jalopes93@hotmail.com

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