

# PROGNOSTIC FACTORS OF HUMAN IMMUNODEFICIENCY VIRUS (HIV)-INFECTED PATIENTS ON CHRONIC HAEMODIALYSIS

Ivo Laranjinha, Patrícia Matias, Jorge Dickson, Hermínia Estibeiro, Helena Boquinhas, José Diogo Barata

Hospital de Santa Cruz, Nephrology department, Carnaxide, Portugal

## INTRODUCTION

- Kidney disease is an important complication of human immunodeficiency virus (HIV) infection<sup>1</sup>.
- Since the introduction of highly active antiretroviral therapy (HAART), mortality in HIV-positive patients has decreased markedly. Simultaneously, the number of HIV-infected patients on dialysis has increased<sup>2</sup>.
- Nevertheless, the prognostic factors of these patients in chronic haemodialysis (HD) are still poorly clarified.

## AIM

- The aim of this study was to identify the factors that can influence the survival of HIV-infected patients in chronic HD.

## METHODS / POPULATION

- Single-center retrospective cohort study of HIV-infected patients on maintenance HD (> 3 months) from January 2009 through November 2014.
- All patients were dialyzed with low-flux membranes.
- Clinical, demographic and laboratory data were obtained from electronic clinical process consultation.
- Statistical analysis: Student,  $\chi^2$  or Wilcoxon test to compare groups and logistic regression for multivariable analysis. A  $p < 0.05$  was considered significant.

<b>POPULATION</b> 44 PATIENTS	<b>Age (years)</b>	53.5 ± 11.5
	<b>Gender (male)</b>	31 (70.5%)
	<b>Race (Caucasian)</b>	25 (56.8%)
	<b>Deaths [n (%)]</b>	17 (38.6%)
	<b>Survival (months)</b>	30.8
	<b>Time on HD (months)</b>	40.6
	<b>Duration of HIV-infection at HD beginning (months)</b>	132.2
	<b>HIV: Type 1 / Type 2 / Types 1 and 2</b>	34 (77.3%) / 8 (18.2%) / 2 (4.5%)
	<b>AIDS at HD beginning</b>	29 (76.3%)
	<b>Under HAART at HD start</b>	30 (76.9%)
	<b>Co-infected with VHC / VHB</b>	13 (29.5%) / 6 (13.6%)
	<b>Diabetes</b>	7 (15.9%)
	<b>Vascular access: Fistula / Graft / Catheter</b>	16 (36.4%) / 7 (15.9%) / 20 (45.5%)
	<b>HIV transmission: sexual / iv drugs</b>	30 (68.2%) / 11 (25%)

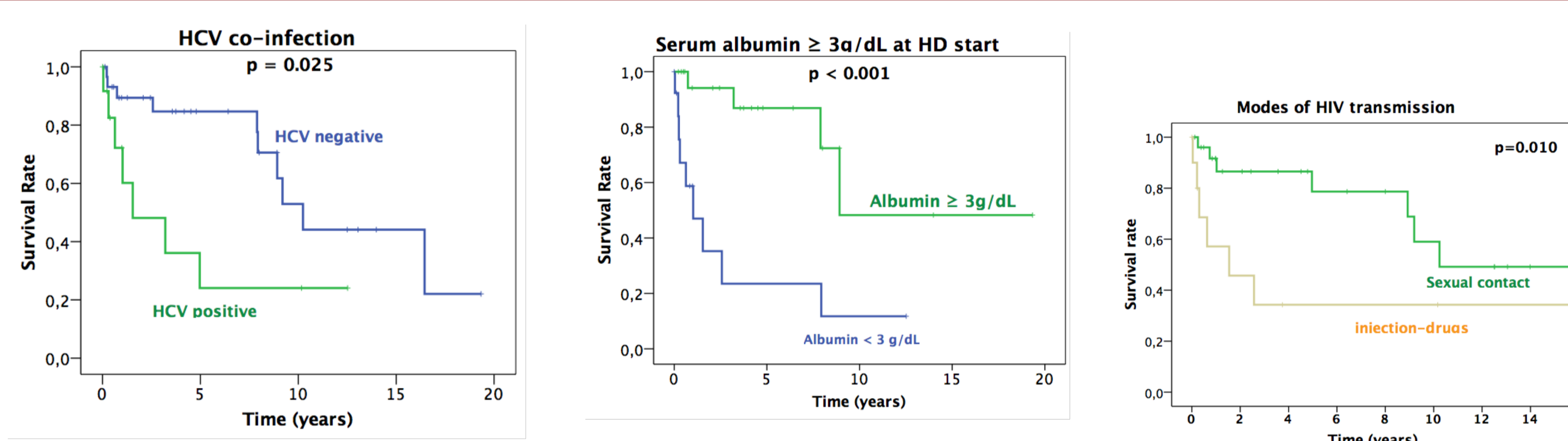
\* Values expressed as mean ± SD, median or frequencies [n (%)]

## RESULTS

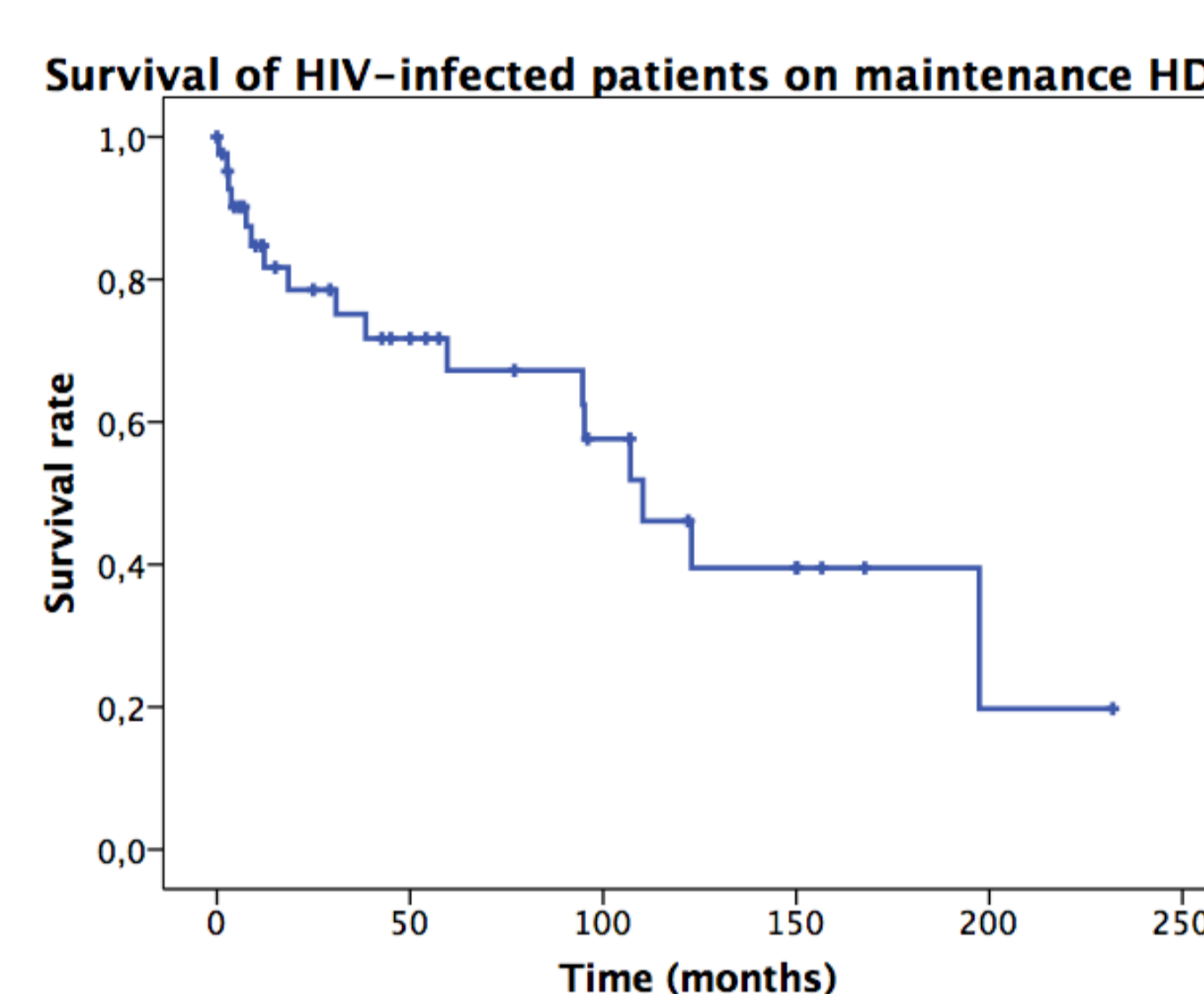
VARIABLES	Patients alive (n=27)	Patients who died (n=17)	p
<b>Age (years)</b>	55.0 ± 10.9	51.3 ± 12.5	NS
<b>Gender (male)</b>	16 (59.3%)	15 (88.2%)	NS
<b>Race (black)</b>	12 (44.4%)	13 (81.3%)	<b>0.026</b>
<b>Diabetes (%)</b>	5 (18.5%)	2 (4.5%)	NS
<b>Vascular access (%)</b>			
<b>Fistula / Graft / Catheter</b>	40.7 / 14.8 / 44.4	31.3 / 18.8 / 50	NS
<b>Albumin (g/dL)</b>	3.3 ± 0.5	2.7 ± 0.7	<b>0.010</b>
<b>Co-infected</b>			
<b>HCV</b>	5 (18.5)	1 (5.9)	NS
<b>HBV</b>	6 (22.2)	7 (41.2)	NS
<b>Duration of HIV infection (months)</b>	150	38	<b>0.028</b>
<b>Type of HIV (%)</b>			
<b>Type 1 / Type 2 / Type 1 and 2</b>	77.8 / 18.5 / 3.7	76.5 / 17.6 / 5.9	NS
<b>Transmission (%)</b>			
<b>Homosexual / Heterosexual / iv drug user</b>	7.4 / 74.1 / 14.8	5.9 / 41.2 / 41.2	NS
<b>AIDS at HD beginning</b>	16 (72.7%)	13 (81.3%)	NS
<b>Number of opportunistic infections</b>	0	1	<b>0.013</b>
<b>Number of hospitalizations</b>	2	3	NS
<b>Log of viral load at HD beginning</b>	3.3 ± 1.3	4.8 ± 1.6	<b>0.044</b>
<b>CD4+ number at HD beginning</b>	244.9 ± 187	287.6 ± 198	NS

\* Values expressed as mean ± SD, median or frequencies [n (%)]

During the study, 17 of the 44 (39%) patients died. Those who died had a shorter duration of HIV infection, a higher viral load and a lower serum albumin at the beginning of HD. They also presented more opportunistic infections during maintenance on HD.



By Kaplan-Meier analysis, we found that patients co-infected with hepatitis C, with serum albumin less than 3 g/dL at the beginning of HD and with HIV transmission by injection drug use had a lower survival.



### Our results:

- 1-year survival = 82.5%
- 3-year survival = 71.9%
- 5-year survival = 62.9%
- 10-year survival = 36.8%

### Ahuja et al.<sup>3</sup>

- 1-year survival – 74%

### Touret et al.<sup>4</sup>

- 1-year survival – 94%
- 2-year survival – 89%

## CONCLUSIONS / DISCUSSION

Our study shows that in this cohort of HIV-infected patients on chronic HD:

- Unlike other studies<sup>3</sup>, the mortality of these patients was related to shorter duration of known HIV-infection and black race.
- As already described<sup>4,5,7</sup>, higher viral load and more opportunistic infections were associated with higher mortality. However, other authors<sup>6,7</sup> have found this association also with lower CD4+ counts.
- In accordance with the literature, hepatitis C co-infection<sup>4</sup>, lower serum albumin<sup>4</sup> and HIV transmission by injection drug use<sup>5</sup> was associated with a lower survival.
- The survival in our cohort (1-yr survival of 82.5%) was similar to which has been reported in the literature<sup>3,4</sup>.

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Contact of first author: ivolaranjinha@gmail.com