

LOWER CD4 LYMPHOCYTE COUNTS IN HIV/HCV CO-INFECTED PATIENTS WITH LIVER FIBROSIS ON LONG TERM HAART AND LOW VITAMIN D LEVEL

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INTRODUCTION

Vitamin D insufficiency (D-INSUFF) has been associated with impaired immune response in human immunodeficiency virus (HIV) patients and with a worse prognosis in patients with liver fibrosis.

Nevertheless, few studies have explored the influence of D-INSUFF in immunological response and liver parameters in HIV and hepatitis C virus co-infected patients (HIV/HCV) on long term highly active antiretroviral therapy (HAART) with successful immune and viral response.

In this cross-sectional study, first we determined the prevalence of D-INSUFF in a cohort of HIV/HCV outpatients with liver fibrosis and second, we assessed whether the existence of D-INSUFF involves the appearance of relevant immunological data and/or particular clinical aspects related to liver disease.

METHODS/DESIGN

Thirty-six HIV/HCV co-infected men (mean age: 48 ± 5,1 years) with liver fibrosis on long term HAART were included in this study.

D-INSUFF was defined as 25OH-D levels ≤30 ng/mL.

Liver fibrosis was defined as the presence of a liver stiffness ≥9 kPa measured by FibroScan™.

Age, data related to HIV and HCV infection, anthropometric, nutritional and metabolic parameters were recorded. Child-Pugh and Model for End-Stage Liver Disease (MELD) were used for assessing the severity of chronic liver disease. The Modification of Diet in Renal Disease (MDRD) was used for estimating glomerular filtration rate (eGFR) (tables 1, 2 and 3).

Table 1: Clinical variables

(n = 36)	
Age (years)	48 ± 5,1
Weight (Kg)	75,5 ± 16,3
BMI (Kg/m ²)	25,7 ± 5,6
MELD score	8,1 ± 2,8
Child stage A: n (%)	36 (100%)
Hepatic encephalopathy: n (%)	0 (0%)
Ascitis: n (%)	5 (13,9%)
Liver stiffness (kPa)	19,4 ± 3,2

Table 2: Biochemical characteristics

(n = 36)	
CD4+/mm ³	572,5 ± 311,3
Creatinine (mg/dL)	0,9 ± 0,2
Total bilirubin (mg/dL)	1,2 ± 0,5
Albumin (g/dL)	4,7 ± 0,3
International Normalized Ratio (INR)	1 ± 0,1
Prothrombin time (PT) (seconds)	14 ± 4

Table 3: Parameters associated with vitamin D metabolism (n = 36)

25 (OH)-D (ng/mL)	29,1 ± 11,5
Calcium (mg/dL)	9,6 ± 0,4
Phosphorus (mg/dL)	2,9 ± 0,5
i-PTH (pg/mL)	46,5 ± 17,9
eGFR (MDRD) (mL/min/1,73 m ²)	106,4 ± 35,7

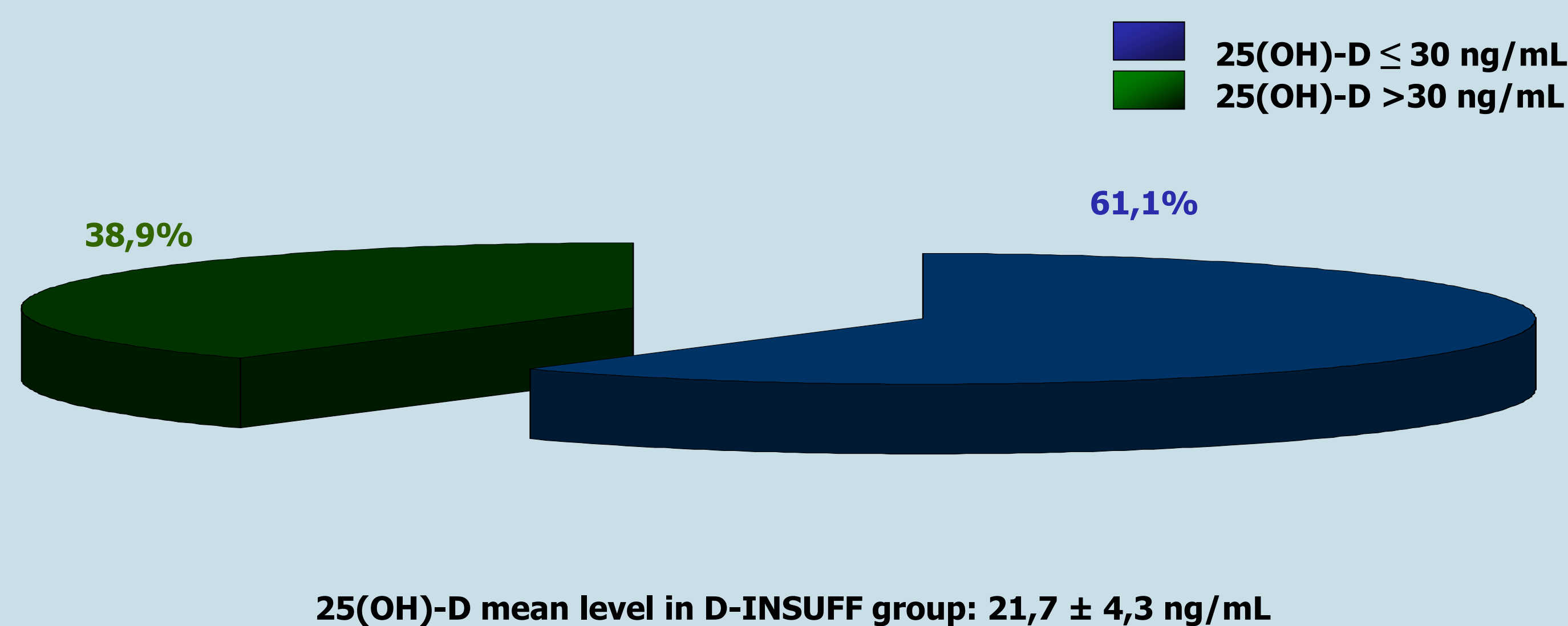
RESULTS

Prevalence of D-INSUFF was 61,1% (figure 1). D-INSUFF patients as compared to patients who had normal levels of 25OH-D (D-SUFF), significantly had lower CD4 lymphocyte count and lower serum albumin levels. Serum i-PTH, calcium and phosphorus levels, liver stiffness value, Child-Pugh and MELD scores were not significantly different among D-INSUFF patients or those with normal 25OH-D level (table 4)

Table 4: Clinical parameters according to vitamin D status

	D-INSUFF (n=22)	D-SUFF (n=14)	p
Age (years)	48,5 ± 5,8	47,3 ± 4	NS
Weight (Kg)	74,9 ± 19,7	76,4 ± 9,2	NS
BMI (Kg/m ²)	25,5 ± 6,7	25,9 ± 3,4	NS
CD4+/mm ³	462,2 ± 170,5	745,9 ± 107,3	0,02
Creatinine (mg/dL)	0,9 ± 0,2	0,9 ± 0,3	NS
eGFR (MDRD) (ml/min/1,73 m ²)	105,7 ± 37,1	110,2 ± 32,1	NS
Total bilirubin (mg/dL)	1,3 ± 0,4	1,1 ± 0,2	NS
Albumin (g/dL)	4,4 ± 0,2	4,8 ± 0,3	0,05
INR	1,04 ± 1	1,03 ± 0,9	NS
Prothrombin time (PT) (seconds)	13,4 ± 1,1	14,9 ± 6,4	NS
Calcium (mg/dL)	9,6 ± 0,4	9,5 ± 0,3	NS
Phosphorus (mg/dL)	2,9 ± 0,5	3 ± 0,5	NS
i-PTH (pg/mL)	50,9 ± 19,5	43,5 ± 16,6	NS
MELD score	8,3 ± 3,2	7,9 ± 1,9	NS
Liver stiffness (kPa)	19,4 ± 2,3	19,6 ± 4,4	NS

Figure 1: Prevalence of vitamin D insufficiency (D-INSUFF)



NS: not significant

CONCLUSIONS

- Although the level of CD4 lymphocytes is adequate in both groups, the immunological response to HAART is less effective in HIV/HVC co-infected patients with vitamin D insufficiency.
- Strategies to supplement vitamin D in these patients may help to improve immune status.