

# VITAMIN D AND SARCOPENIA IN HIV-INFECTED PATIENTS.

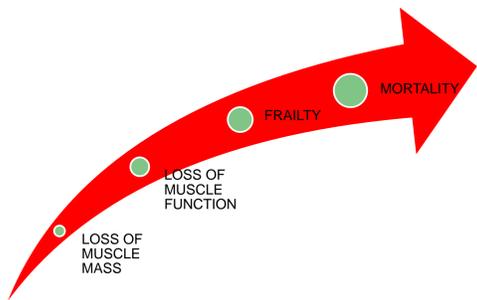
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## INTRODUCTION

Sarcopenia is defined as an age-associated loss of skeletal muscle mass and function <sup>1</sup>

It has been related to higher mortality in general population as well as in HIV-infected patients<sup>2</sup>.

Indeed, sarcopenia is a marker of frailty in the elderly.



## OBJECTIVES

The aim of our study was to describe the prevalence of sarcopenia in a cohort of HIV-infected patients.

We also looked for related factors for sarcopenia in this population.



## METHODS

Skeletal muscle mass (SMM), total fat mass and body fat distribution were measured by DXA scan.

Muscle mass index (MMI) was calculated as described: lower limb SMM/height<sup>2</sup>.

Sarcopenia was defined as an MMI <2 SD from observed in general population <sup>3</sup>

- 7.26 Kg/m<sup>2</sup> in males,
- 5.5 Kg/m<sup>2</sup> in females.

Body fat distribution was determined by body fat index: trunk fat mass divided by limb fat mass.

This index is used in to define lypodystrophy in HIV infected patients.

Plasma levels of 25-OH-vitamin D (VD) were measured by immunoassay.

Hypovitaminosis D was described as 25-OH-VD levels <30 ng/mL.

Vitamin D status was divided into three categories:

- Sufficiency >30 ng/mL
- Insufficiency: 10-30 ng/mL
- Severe deficiency <10 ng/mL-

Figure 1. DXA scan.

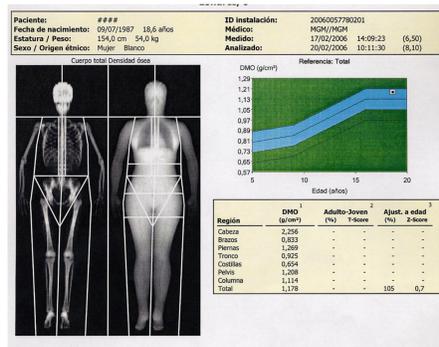
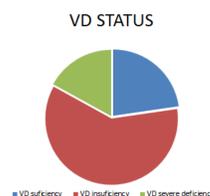


Figure 2. VD status



## RESULTS

321 HIV- infected patients were included. General and biochemical features are shown in table 1 and 2.

**Table 1. General characteristics of cohort population.**

GENERAL FEATURES	
N	321
AGE (years)	38 (32-45)
MALES	0,854
HIV DURATION (years)	4,0 (1,6-10,0)
ON ART	0,542
ART DURATION (months)	25 (12-60)
HCV COINFECTION	0,188
SMOKING	0,506
TYPE 2 DIABETES	0,01
HYPERTENSION	0,181
BMI (Kg/m <sup>2</sup> )	23,8 (22,1-26,0)
WAIST CIRCUMFERENCE (cm)	85 (79-90)
LYPODYSTROPHY	0,023

Data expressed in median (IQR) or %.

ART:antiretroviral treatment; HCV: hepatitis C virus; BMI: body.mass index.

**Table 2. Biochemistry features.**

LABORATORY CHARACTERISTICS	
CD4 Cell Count (cel/mcl)	454 (307-615)
HIV-1 Viral Load	42 (19-160000)
Indetectable Viral Load	51,4% (84,3%)*
fasting plasma glucose (mg/dL)	92 (85-99)
fasting plasma insulin (mCu/mL)	7,4 (4,4-11,6)
HOMA-r	1,6 (0,9-2,7)
total cholesterol (mg/dL)	176 (154-209)
LDL-cholesterol (mg/dL)	101 (83-124)
HDL-cholesterol (mg/dL)	46 (39-55)
triglycerides (mg/dL)	115 (63-170)

Data expressed in median (IQR) or %.

\* % of treated patients

77% of our HIV-infected patients had low levels of 25-OH-VD (<30 ng/mL), being 10% of all severe deficient (<10 ng/mL) (figure 2). We found a prevalence of sarcopenia in our patients of 23,5%.

Loss of muscle mass was related to lower BMI, lower waist circumference and lower body fat.

After adjusting for age, gender, CD4 count and treatment, plasma levels of 25-OH-VD (OR 0,27 [IC95% 0,08-0,89], p=0,032), and total body fat (OR 0,93 [IC95% 0,88-0,98], p=0,008) remained related to sarcopenia (Table 3).

**Table 3. Multivariate analysis of sarcopenia.**

VARIABLES	OR	IC95%	p
log VD (ng/mL)	0,28	0,09-0,90	0,032
total body fat (mg)	0,93	0,88-0,98	0,008

Variables included: logVD, total fat, gender, Treatment, CD4 count.

## CONCLUSIONS

1. Sarcopenia is a frequent condition in HIV-infected patients despite the young age, affecting to 23.5% of our population.
2. Increased 25-OH-vitamin D levels and increased body fat mass may protect from it.
3. Clinical studies on vitamin D supplementation for sarcopenia prevention in HIV-infected patients are warranted.

## REFERENCES

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