

**FACTORS ASSOCIATED  
WITH LIVER FIBROSIS  
IN HIV-1/ HCV  
COINFECTED PATIENTS  
ON ANTIRETROVIRAL  
THERAPY.**

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## **Background:**

The prevalence of HCV infection in HIV + patients (p) ranges from 28 to 46% and is practically universal among injecting drug users.

The clinical profile of coinfecting p has changed due to the lower AIDS related morbidity and mortality in the HAART era.

Information about HCV infection in HIV + patients in the HAART era is scarce.

**Objective:** The aim of this study is to elucidate whether factors associated with HAART have any impact on liver fibrosis in HIV/ HCV coinfectd p.

**Methods (1):**

**Study design:** Cross-sectional study on the factors associated with liver fibrosis in HIV/HCV coinfectd p.

## **Methods (2):**

**Patients:** HIV/HCV coinfecteD p attending an HIV outpatient clinic, eligible for HCV treatment.

All p underwent percutaneous liver biopsy and were classified according to Knodell classification index (total score, grade of inflammation and fibrosis stage).

## **Methods (3):**

Several clinical characteristics were extracted from the HIV Unit clinical charts and database:

- prior AIDS event
- prior immunosuppression
- HCV genotype
- liver enzymatic levels
- CD4 cell count (current and nadir)
- viral loads for HIV and HCV
- antiretroviral therapy

## **Methods (4):**

### **Statistical methods:**

Bivariate and multivariate analyses were used to explore the effects of those clinical and virological characteristics on the presence of liver fibrosis (Knodell stages of fibrosis 0+1 versus 3+4) .

# Results (1):

## **Demographic characteristics**

Age	36 y (range 24-60)
Gender	76,9% men (121 p)
Behavioural risk factor	88,3% (138 p) IDU
Time of HCV infection*	15 y (range 7-25)

\* time of injecting drug use

## Results (2):

### **CD4+ cell count (cell/ $\mu$ ) at biopsy time**

median ( range) 539 (154-1416)

mean (SD) 596 (266)

**AIDS prior event (n)(%)** 26 (17.9)

### **CD4+ cell count nadir (cell/ $\mu$ ) (n)(%)**

<200 cell/  $\mu$ L 56 (35.6)

$\geq$ 200 cell/  $\mu$ L 101 (64.4)

**CD4 cell count nadir < 200 cell/  $\mu$ L or  
AIDS prior event (n) (%)** 67 (43.2)

### **Changes in CD4 cell count (cell/ $\mu$ L) from nadir to biopsy time**

median ( range) 267 (0-1090)

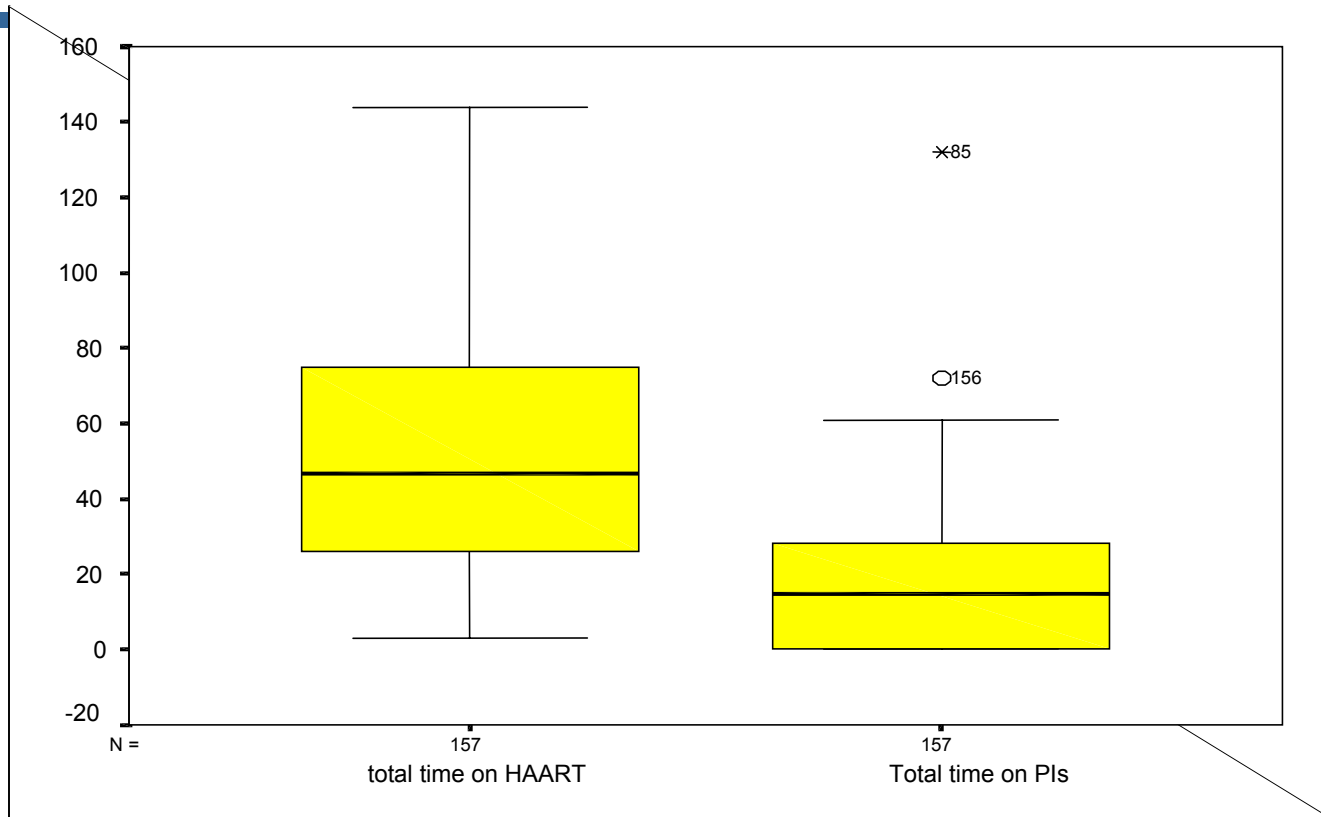
mean (SD) 304 (216)

# Results (3)

<b>HIV-1 plasma RNA at biopsy time (n) (%)</b>	
≤1000 copies/ mL	118 (75.2)
>1000 copies/ mL	39 (24.8)
<b>Prior HAART exposure (n) (%)</b>	143 (91.1)
<b>Prior PI exposure (n) (%)</b>	97 (61.8)
<b>VHC plasma RNA (% &gt;2,000,000 copies/ml)</b>	80%

# Results (4)

## Total time on HAART and on PIs

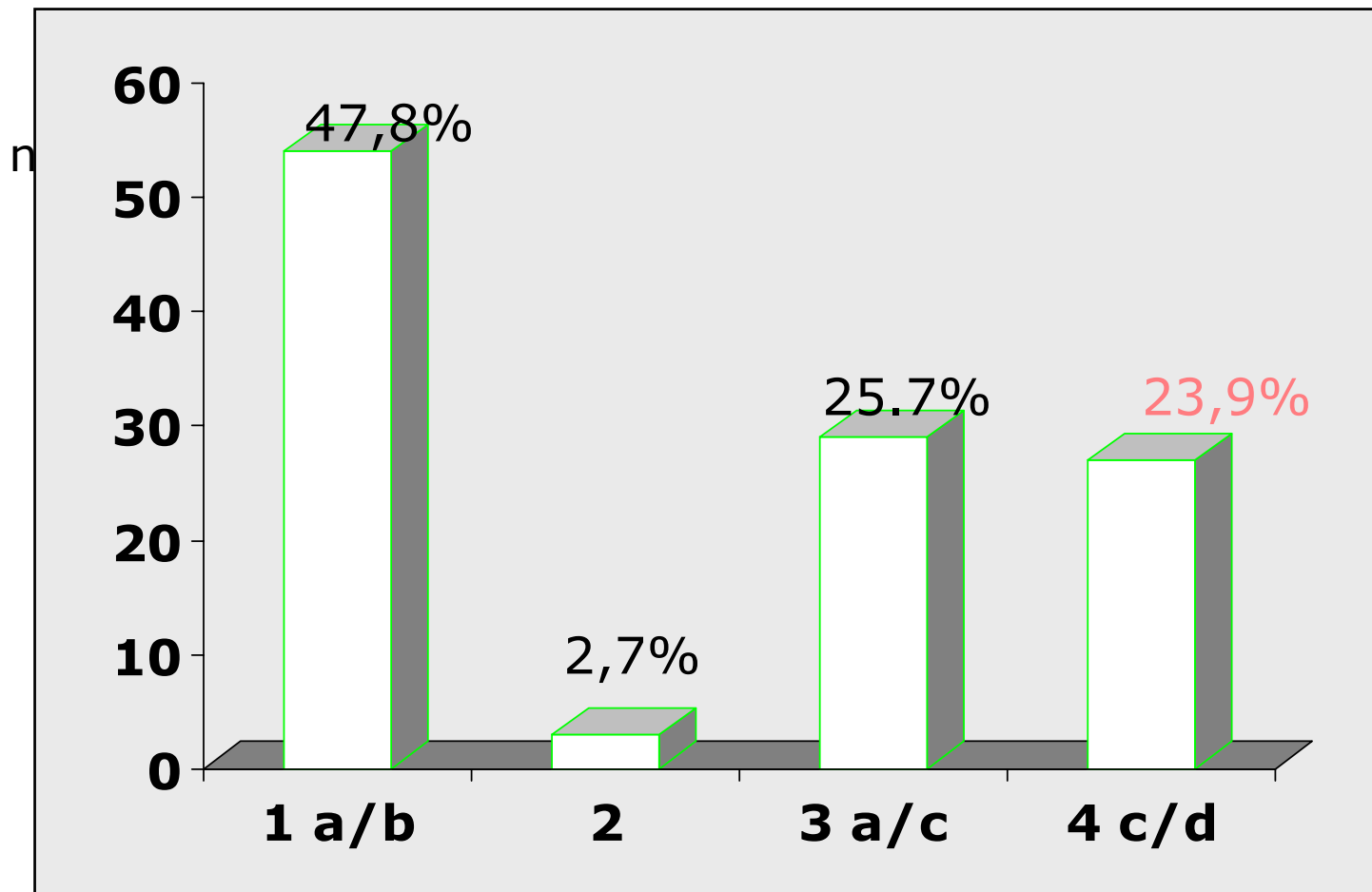


**mean: 48.9 m (33.1)**  
**median: 42.5 m (3-144)**

**mean: 21.5 m (13.5)**  
**mediana: 20 m (3-72)**

# Results (5):

VHC Genotypes (113 p/157)



## Results (6):

### Histological findings

	<u>median</u>	<u>range</u>
Knodell	6	0-18
Inflammation degree	5	0-14
Fibrosis stage	1,7	0-4



No fibrosis ( stage 0)	29.9 % (47p)
Fibrous portal expansion ( stage 1)	22.3 % (35 p)
Binding fibrosis ( stage 3)	42 % (66 p)
Cirrhosis (stage 4)	5.7% (9 p)

# Results (7)

## Bivariate analysis (1)

<b>Factor</b>	<b>Odds ratio</b>	<b>95% CI</b>	<b>p</b>
Gender (male)	1.23	0.56- 2.68	0.610
Age (>35 y)	1.02	0.96- 1.08	0.606
Behavioural risk factor (IDU)	1.53	0.56- 4.17	0.410
Genotypes (Genotype 1)	1.37	0.65- 2.87	0.408
HCV plasma viral load (>2,000,000 copies)	1.10	0.34- 3.60	0.873

# Results (8)

## Bivariate analysis (2)

<b>Factor</b>	<b>Odds ratio</b>	<b>95% CI</b>	<b>p</b>
CD4 cell count at biopsy time below 400 cell/mm <sup>3</sup>	2.00	1.06- 3.78	0.032
CD4 nadir <200 cell/mm <sup>3</sup> or a prior AIDS event	1.53	0.81- 2.89	0.194
Change between CD4 nadir and at biopsy time <400 cell/mm <sup>3</sup>	1.88	0.99- 55.01	0.054
Plasma HIV-1 viral load >1,000 copies/mL	1.38	0.67- 2.86	0.382
Prior PI experience (no exposure)	1.90	0.61- 2.20	0.660
Time on HAART (<50 months)	1.90	1.01- 3.58	0.047
Time on PIs (> 30 months)	1.71	0.91- 3.22	0.095

# Results (9)

## Multivariate Analysis

Factor	Odds ratio	95% CI	p
CD4 cell count at biopsy time below 400 cell/ mm <sup>3</sup>	2	1.1- 3.8	<b>0.032</b>

## **Conclusions (1):**

The bivariate and multivariate analysis showed that only a CD4+ count  $\leq 400$  cells/ $\mu$ L was associated with liver fibrosis.

In our study no significant association was found between liver fibrosis and immune reconstitution, prior immunosuppression or antiretroviral exposure.

## **Conclusions (2):**

There is a great proportion of HIV/ HCV coinfecte d p on HAART with advanced liver fibrosis (47.7%) and a higher than expected prevalence of Genotype 4c/d.

HAART should be considered and started early in HIV+ patients coinfecte d with HCV in order to maintain a CD4 cell count  $>400$  cell/mm<sup>3</sup>.

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