**Prevalence and Severity of Nonalcoholic Fatty Liver Disease by Transient Elastography with Controlled Attenuation Parameter: risk factors in unselected HIV mono-infected population**

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**Background**

Nonalcoholic fatty liver disease (NAFLD) is one of the most common causes of liver injury in Western countries. The risk to develop NAFLD is higher for HIV-infected patients. In non-HIV patients, prevalence of and the risk factors related to NAFLD are well documented, together with complications. By contrast, there are limited data on NAFLD in the HIV-infected population.

**Material And Methods**

Between January and June 2018, 643 HIV-infected patients in active follow-up underwent transient elastography (TE) examination with controlled attenuation parameter (CAP). We prospectively investigated prevalence and predictors of NAFLD and liver fibrosis by TE and CAP in unselected HIV-infected adults without significant alcohol intake (<20g/die), viral hepatitis coinfection and other causes of liver disease. We excluded from the sample all failed TE examination and unreliable measurement (Figure 1). NAFLD and severe NAFLD were defined as CAP at least 248 dB/m and 285 dB/m, respectively. Significant liver fibrosis and cirrhosis were defined as TE measurement at least 7.1 and 13 kPa, respectively [2,3]. Predictors of NAFLD and significant liver fibrosis in patients with steatosis were determined using logistic regression analysis, including covariates that were statistically significant in the univariable analysis. Statistical analyses were performed using IDE RStudio (Vers 0.98.945).

**Results**

A total of 412 consecutive HIV mono-infected patients (mean age 47 years, 72% men, mean CD4+ cell count 700 cells/μl, 98% on antiretrovirals) were included. Prevalence of NAFLD and severe NAFLD in the cohort is 42.7% and 25%, respectively, while prevalence of significant liver fibrosis and cirrhosis is 13.4% and 2%, respectively. Restricting the sample to steatosis population, prevalence of fibrosis is 9.7%. The results of univariable analyses are shown in Table 1. After adjustment, NAFLD is associated with BMI (Body Mass Index), sex, elevated ALT, triglycerides and previous exposure to old NRTI (AZT, ddI, d4T). As expected, BMI is a predictor of significant liver fibrosis in steatotic patients. Conversely, previous use of more recent protease inhibitors (ATV, DRV) seems to protect against liver fibrosis in patients with Table 2 and 3.

**Conclusions**

In our cohort of HIV mono-infected patients, NAFLD is frequently observed and a significant proportion of patients has fibrosis. Metabolic conditions and elevated ALT are main predictors. The protective power of more recent protease inhibitors (ATV and DRV) versus evolution in fibrosis is interesting although controversial, therefore further investigation is required. Diagnostic assessment with TE examination allows early recognition of NAFLD in HIV population, and consequently, life-style modifications to prevent complications and improve liver damage.

**Table 1.** Demographic, clinical, biochemical, virological and pharmacological characteristics of the study population (n=643) and outcome analysis by outcome status, that is, presence of nonalcoholic fatty liver disease or significant liver fibrosis in patients with NAFLD.

**Table 2.** Multivariable analysis of predictors of nonalcoholic fatty liver disease (controlled attenuation parameter at ≥248 dB/m).

**Table 3.** Multivariable analysis of predictors of significant liver fibrosis (transient elastography measurement ≥ 7.1 kPa) in patients with NAFLD controlled attenuation parameter at ≥ 248 dB/m.

**REFERENCES**


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[Figure 1](#) shows flow chart displaying the selection of study participants. Of 643 consecutive HIV patients who had a transient elastography examination done at the University Hospital of Palermo (Italy) and had available laboratory data, 170 were excluded because of correlation with HCV or HBV and other liver disease, 33 because of significant alcohol intake, 28 because of failure to perform transient elastography examination or unreliable measurement (defined as < 10 valid measurements and an interquartile range > 30%); HIV, human immunodeficiency virus; HBV, hepatitis B virus; HIV, hepatitis C virus; TE, transient elastography.