**Background:**Non-alcoholic fatty liver disease (NAFLD) represents the most common form of chronic liver disease in mono-infected (without concomitant hepatitis B and/or C virus infection) people living with human immunodeficiency virus (HIV). The proper and on time identification of at-risk HIV-positive individuals would be relevant in order to reduce the rate of progression from NAFLD into non-alcoholic steatohepatitis (NASH), cirrhosis and hepatocellular carcinoma.

**Objectives**: The aim of this study was to explore visceral fat thickness (VFT) and anthropometric measurements associated with the development of NAFLD in patients mono-infected with HIV and on long-standing combination antiretroviral therapy (cART).

**Method:** Eighty-eight (n = 88) HIV-positive male patients, average age 39.94 +- 9.91 years, and stable on cART, were included in this prospective study. VFT was measured using ultrasonography. Anthropometric measurements included body mass index (BMI), waist-to-hip ratio (W/H), waist-to-height ratio (WHtR), waist and hip circumference (WC, HC). Differences between variables were determined using the chi-square test. The receiver operating characteristic (ROC) curve and the Youden index were used to determine optimal cut-off values of VFT and hepatic steatosis. The area under the curve (AUC), 95% confidence intervals, sensitivity and specificity are reported for the complete sample. Significance was set at p < 0.05.

**Results:** Patients with steatosis had significantly higher values of BMI, HC, WC, W/H and WHtR. The VFT was higher in patients with steatosis (p < 0.001). Specifically, VFT values above 31.98 mm and age > 38.5 years correlated with steatosis in HIV-positive patients, namely sensitivity 89%, specificity 72%, AUC 0.84 (95% CI, 0.76–0.93, p < 0.001), with the highest Youden index = 0.61. The sensitivity of the age determinant above this cut point was 84%, specificity 73% and AUC 0.83 (95% CI, 0.75–0.92, p < 0.001), with the highest Youden index of 0.57.

**Conclusion:** In the absence of more advanced radiographic and histological tools, simple anthropometric measurements and VFT could assist in the early identification of persons at risk of hepatic steatosis in low- and middle-income regions.

**Keywords:** Non-alcoholic fatty liver disease; HIV mono-infection; Hepatic steatosis; Ultrasonography; Anthropometric measurements.