

Serum Ferritin Is Associated With Elevated ALT Among People Living With HIV and HIV-Seronegative Individuals in the Miami Adult Studies on HIV Cohort

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Objectives: It has been shown that people living with HIV (PLWH) are vulnerable to liver inflammation and damage. Elevated serum ferritin has been associated with higher incidence of liver damage. This study examined the relationship between serum ferritin levels and liver damage in PLWH.

Methods: A cross-sectional analysis of data from participants in the Miami Adult Studies on HIV (MASH) cohort. Informed consent, demographics, Alcohol Use Disorder Identification Test (AUDIT) for hazardous drinking (≥ 8), and fasting blood samples were collected by trained personnel. HIV status, HIV Viral Load (VL, copies/ml) was abstracted from medical charts with the participants' consent. LabCorp (Burlington, NC) determined serum ferritin and serum alanine aminotransferase (ALT). Opioid use was analyzed by urinalysis (American Bio Medica Corp; Kinderhook, NY). Statistical analyses

were performed using SPSS 26 and included T-test, linear and logistic regression. Elevated serum ferritin levels were defined as ≥ 150 ng/mL and elevated ALT as ≥ 5 IU/L.

Results: Participants' mean age was 54.6 ± 7.9 years ($n = 1,026$), 57.9% were male, and 61.2% were Back; 46.8% were PLWH, 90.9% had an undetectable viral load. Males had significantly higher ALT (29.6 ± 36.2 vs. 20.8 ± 16.4 IU/L) and serum ferritin (156.1 ± 223.0 vs. 98.7 ± 114.9 ng/mL) than females ($P < 0.001$). Ferritin (148.3 ± 203.3 vs. 117.5 ± 171.1 ng/mL; $P = 0.009$), but not ALT (25.6 ± 32.078 vs. 26.1 ± 27.7 IU/L; $P > 0.05$), was significantly higher in PLWH than HIV-uninfected participants. In a linear model, elevated ALT was positively associated with higher serum ferritin levels after adjusting for sex, age, HIV status, and opioid use ($\beta = 163.75$ SE = 14.579, $p = 0.001$). Individuals with elevated ALT had 4.55 greater odds of having elevated ferritin levels (CI: 3.203–6.460, $P < 0.001$) after adjusting for age, sex and opioid use.

Conclusions: Alanine aminotransferase seems to be a good predictor of serum ferritin levels in PLWH. Elevated levels of ferritin have been associated with liver inflammation, chronic kidney disease, acute infections, and therefore deleterious health consequences in PLWH that warrant further examination.

Funding Sources: National Institute on Drug Abuse.