SEX DIFFERENCES IN THE ASSOCIATION OF HIV WITH METABOLIC-FATTY LIVER DISEASE

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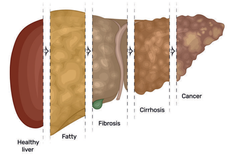


BACKGROUND

- People with HIV (PWH) are at high risk for metabolic-dysfunction-associated fatty liver disease (MAFLD)
- In the general population, sex differences seem to exist in frequency and severity of MAFLD with **higher prevalence of MAFLD in men but higher incidence of liver fibrosis in women.**
- Less is known about sex differences in MAFLD and liver fibrosis in the setting of HIV infection

Objective: ***Investigate sex differences in the prevalence and severity of MAFLD in HIV population***

METHODS

- Multicenter cohort study including consecutive PWH who underwent screening for MAFLD and liver fibrosis by liver stiffness measurement with associated CAP
- MAFLD was defined as:
  - Presence of hepatic steatosis, diagnosed as CAP≥270 dB/m plus any among **type 2 diabetes, overweight** (BMI>25 Kg/m^2) or two other metabolic abnormalities
- Significant liver fibrosis was diagnosed as LSM≥8 kPa
- The incidence of MAFLD and significant liver fibrosis was assessed through survival analysis

RESULTS

Population characteristics

Population characteristics (N= 1359)	
Age	51.8 (9.9)
Female	25%
BMI	25.1 (4.4)
Ethnicity	25% black, 64% white
HIV duration	17.2 (9.5) years

Baseline characteristics

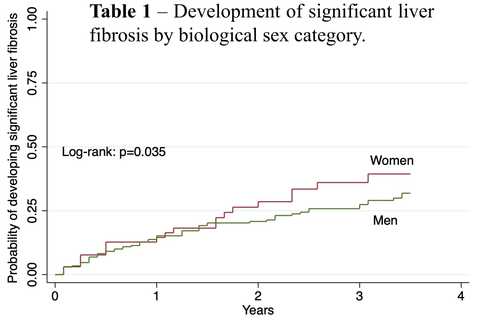
	Female	Male
Prevalence of MAFLD	17.7%	24.3%
Prevalence of liver fibrosis	10.7%	13.4%
Black ethnicity	48%	17%
ALT	26.4	33.4
HDL cholesterol	1.46	1.11
Triglycerides	1.69	2.47

RESULTS

- Incidence of **MAFLD similar between women and men with HIV**
- Incidence of **liver fibrosis was higher in women** vs. men with HIV
  - 7.0 vs. 5.9 per 100 PY

particularly **after 50 years old**

Table 1 – Development of significant liver fibrosis by biological sex category.



- On multivariable cox regression and after age adjustment**:**
- **MAFLD** (aHR 3.3, 95% CI 2.0-5.6) **and female sex** (aHR 2.2, 95% CI 1.3-3.5) **were independent predictors** of developing significant liver fibrosis while **CD4 cell count was protective** (aHR 0.99, 95% CI 0.99-0.99).

CONCLUSION

- MAFLD seems to be a **sexual dimorphic disease in PWH**
- Despite having lower rates of MAFLD, women with HIV have higher incidence of significant liver fibrosis compared to men
  - **Especially after 50 years of age**
- Future studies should target adequate consideration of sex differences in clinical investigation of MAFLD to fill current gaps and implement precision medicine for PWH
  - Hormone data, drug exposure, viral co-infection

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