From NAFLD to MAFLD: implications of change in terminology in PWH

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Background

Metabolic associated fatty liver disease (MAFLD) has been recently proposed as a new concept to describe nonalcoholic fatty liver disease (NAFLD), based on positive diagnostic criteria rather than exclusionary ones. The ongoing debate regarding NAFLD/MAFLD construct has not yet reached HIV arena.

Our objective was to characterize MAFLD in comparison to NAFLD and to determine prevalence and predictors of both conditions in people with HIV (PWH).

Methods

This was a cross-sectional study of two prospective cohorts (Modena HIV Metabolic Clinic and LIVEHIV Montreal) comprising PWH on stable ART, that were screened for fatty liver disease (FLD) defined as controlled attenuation parameter of ≥248 dB/m by transient elastography. NAFLD was defined as FLD in absence of significant alcohol intake and HBV or HCV co-infection. Significant liver fibrosis was defined as liver stiffness ≥7.1 kPa.

MAFLD was defined as the presence of FLD and at least one of the criteria shown in the Figure 1.
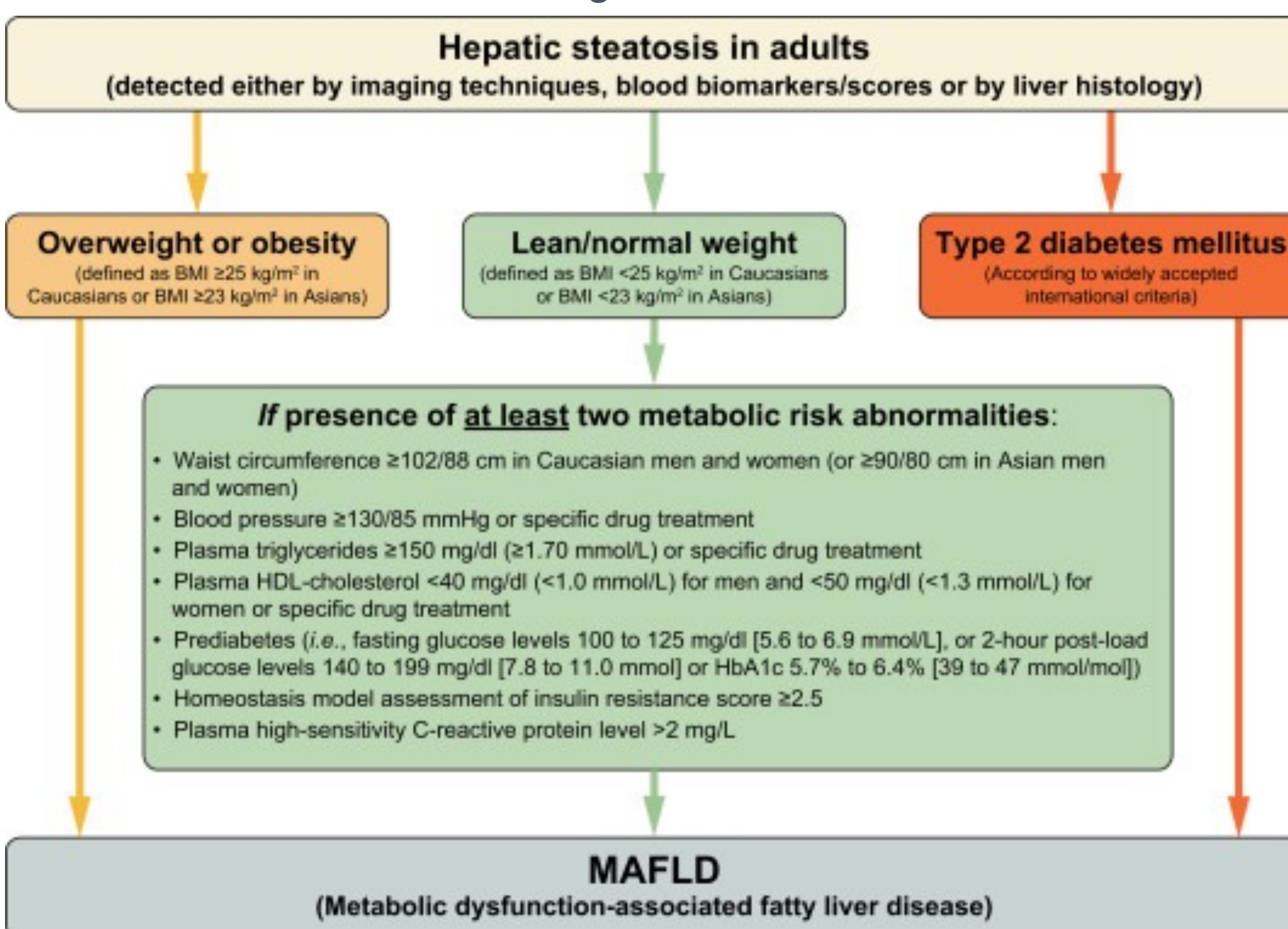
Figure 1. MAFLD criteria according to Eslam M. JHepatol.2020;73(1):202-209].
Predictors for both conditions were explored in multinominal logistic regression.

Results and discussion

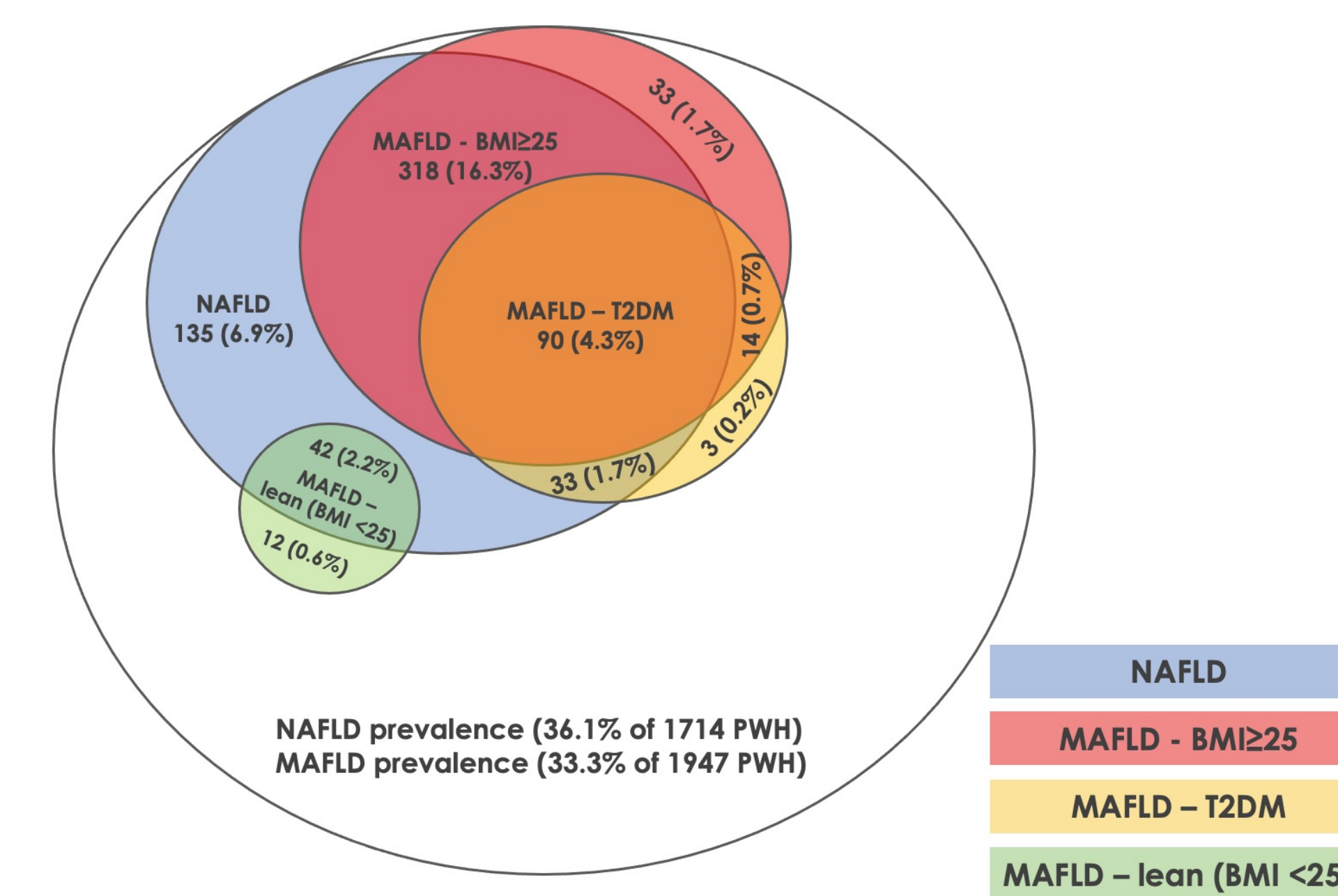NAFLD and MAFLD have a substantial overlap in PWH (Figure 2).

Liver fibrosis was associated with MAFLD with diabetes or BMI>25 kg/m^2 (Figure 3).

Longer time since HIV diagnosis was associated with lean MAFLD and MAFLD with BMI >25 kg/m^2 (Figure 3).

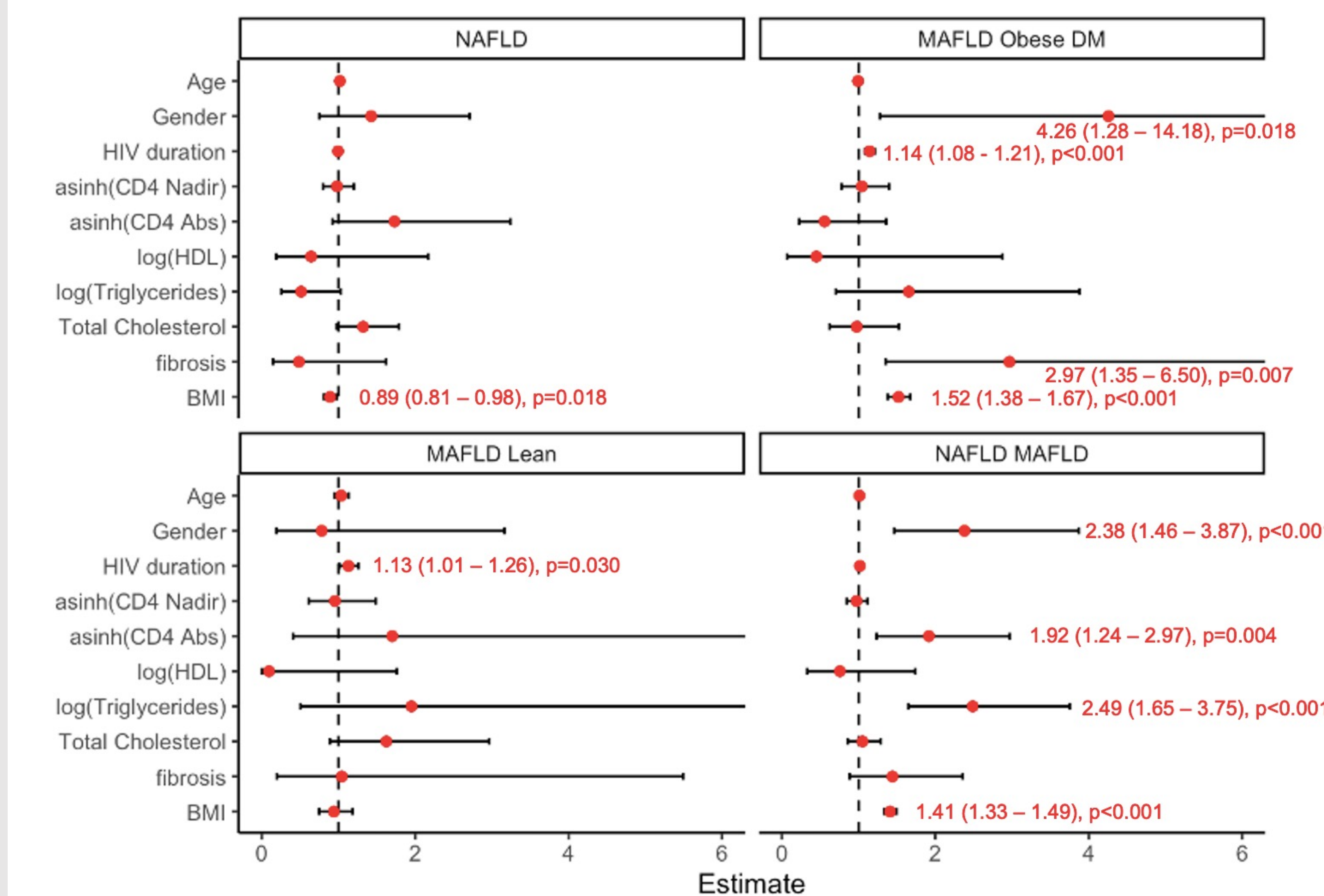Male sex, higher CD4 count, and triglycerides were associated with NAFLD/MAFLD overlap (Figure 3).

- We included 1947 PWH.
- Mean age 54 years, 74% males, median HIV duration 21 years, median current CD4 703, 98% with undetectable HIV viral load, current ART exposure to INSTI 53%, PI/c 25%, 32% NNRTI.
- Prevalence of overweight and diabetes was 23.4% and 49.5%.
- NAFLD was diagnosed in 618/1714 (36.1%) PWH, after excluding PWH with significant alcohol intake (1.8%), HBV (1.2%), HCV (9.2%).
- MAFLD was diagnosed in 648 (33.3%) PWH.

Figure 2. depicts proportions of PWH with NAFLD, MAFLD and NAFLD/MAFLD overlap.

Prevalence of significant liver fibrosis differed across the groups:

- 9.9% in no NAFLD-no MAFLD
- 9.3% in NAFLD only,
- 26.5% in NAFLD/MAFLD overlap,
- 48% in MAFLD with diabetes and overweight/obesity
- 16.7% in lean MAFLD

Figure 3. Male sex, higher CD4, triglycerides and BMI were associated with NAFLD/MAFLD. Significant liver fibrosis and longer time since HIV diagnosis were associated with MAFLD with diabetes and overweight/obesity.

Conclusion

- PWH displayed a substantial overlap between NAFLD and MAFLD, but those with MAFLD and diabetes or overweight/obesity had higher risk of significant liver fibrosis.

- Both HIV-related and metabolic variables were independent predictors of NAFLD/MAFLD.

- Change of terminology may help to prioritize PWH requiring surveillance and interventions for the management of FLD and associated liver fibrosis.

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