METABOLIC-ASSOCIATED FATTY LIVER DISEASE AND ITS ASSOCIATION WITH EPICARDIAL FAT

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BACKGROUND

- Increasing evidence suggests fatty liver disease and metabolic conditions fall along a spectrum. An entity of metabolic associated fatty liver disease (MAFLD) has been recently proposed.
- We investigated the prevalence and factors associated with MAFLD, and associations with cardiovascular disease (CVD) in older people living with HIV(PWH).

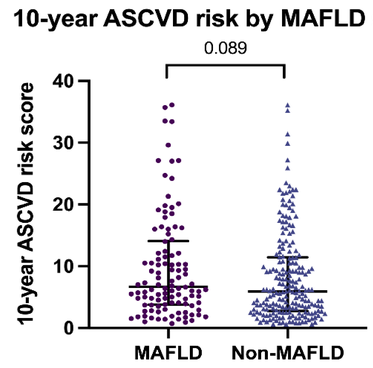
METHODS

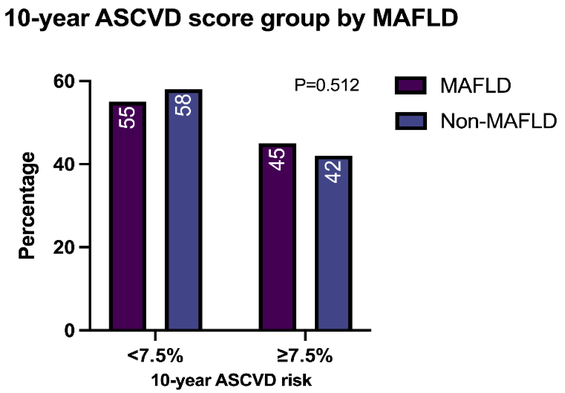
- We conducted a cross-sectional assessment of CVD risk (epicardial fat tissue, coronary calcium score (CAC) and 10-year atherosclerotic CVD score (ASCVD)) in participants aged >50 years from March 2018 to September 2019, in an aging HIV cohort in Bangkok, Thailand.
- PWH with significant alcohol consumption and hepatitis B and C co-infections were excluded. Transient elastrography was performed, and non-alcohol fatty liver disease (NAFLD) was defined as controlled attenuation parameter (CAP) ≥248 dB/m.
- MAFLD diagnosis was based on 2020 International Consensus criteria [1].
- The discriminatory ability of MAFLD and NAFLD to identify higher epicardial fat volume (defined as >median value of 100 cm^3) was assessed using the area under the receiver operating characteristic (AROC) curve.

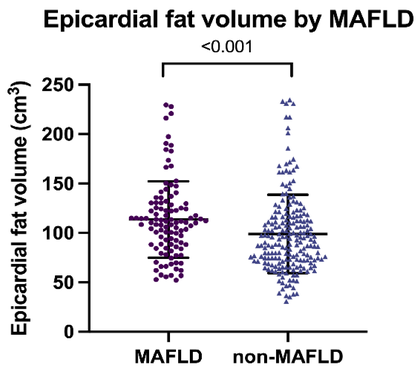
RESULTS

- A total of 319 PWH (37% female) with median (interquartile range [IQR]) age 54 (52-60) years, and CD4 of 613 (467-804) cells/mm^3 and were included. Most (98%) were virally suppressed.
- MAFLD and NAFLD prevalence was 35% and 38%, respectively.

The prevalence of metabolic associated fatty liver disease (MAFLD) and non-alcoholic fatty liver disease (NAFLD) in an aging PLHIV cohort was 35%. MAFLD was independently associated with higher levels of albumin, epicardial fat volume and CD4/CD8 ratio.







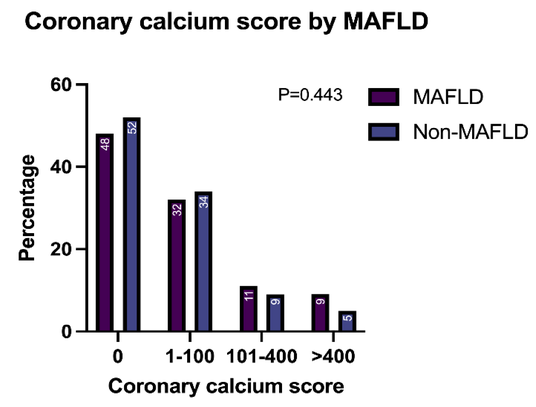


Figure 1. Receiver operating characteristic curve of MAFLD and NAFLD for predicting higher epicardial fat tissue (>100 cm^3)

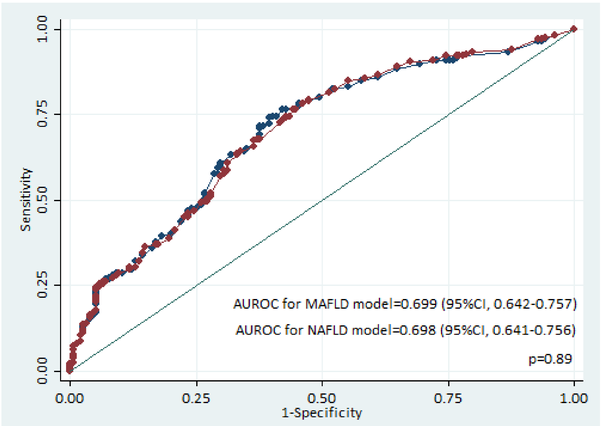


Figure 1. Comparison of for 10-year ASCVD risk score, CAC >100 and Epicardial fat tissue by MAFLD status
Note: 10-year ASCVD risk score was calculated using pooled cohort equation

RESULTS

- Epicardial fat volume was significantly higher in PWH with MALFD than those without MAFLD (mean ±SD, 113.6 ±38.7 vs. 98.9 ±39.7 cm3, p<0.001). Liver stiffness (5.8 [4.8-7.3) vs. 5.4 [4.4-6.8] kPa, p=0.11), 10-year ASCVD risk (6.7% [3.8-14.0] vs. 5.9% [2.8-11.4], p=0.09) and CAC were comparable between PWH by MAFLD status.
- In a multivariable model, higher albumin (odds ratio [OR]=1.99, 95%CI 1.21-3.29), epicardial fat volume >100 cm 3 (OR=2.41, 95%CI 1.42-4.09), and CD4/CD8 ratio>1 (OR=0.55, 95%CI 0.32-0.97), were significantly associated with MAFLD.
- In a model adjusted for confounders, epicardial fat volume >100 cm^3 showed similar discriminative ability for both MAFLD (AROC: 0.699, 95%CI 0.642-0.757) and NAFLD (AROC: 0.698, 95%CI 0.641-0.755, p=0.89).

CONCLUSIONS

- In older PWH, >33% met criteria for MAFLD, so routine screening of metabolic disease in this population remains highly relevant. The association of MAFLD with epicardial fat tissue is consistent with previous evidence suggesting CVD risk is higher in those with fatty liver disease.

REFERENCES

1. Eslam M, Sanyal AJ, George J; International Consensus Panel. MAFLD: A Consensus-Driven Proposed Nomenclature for Metabolic Associated Fatty Liver Disease. Gastroenterology. 2020 May ;158(7):1999-2014.e1.