Tools for early detection of metabolic risk in MAFLD

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Patients with MAFLD vs without MAFLD have higher risk of the following

Atherosclerosis, CAD

Meta-analysis (14 studies; N=2932)[1]
High risk of CIMT, CPs, CAD

Cross-sectional study (N=5121)[2]
High risk of any AP, NCP

High mortality/ low survival

10-year survival: 77% vs 87%, p<0.005, N=420)[3]

Major causes of death[4] in:

- **MAFLD**: Cancer, CV events
- **NASH:** CVD, extrahepatic cancer

Fatal or non-fatal CVD events

Meta-analysis (16 studies; N=34043): ~ 2600 CVD events[5]

- **MAFLD:** high risk of CVD mortality
- **NASH:** high risk of liver related mortality

Available diagnostic tools

Liver enzymes	Not reliable
Ultrasound	Inexpensive and accessible; cannot distinguish fibrosis and steatosis
CT without contrast	Better in morbid obesity; less accurate with less steatosis
MRI	Detects mild steatosis, quantifies hepatic fat most accurately
Liver biopsy	Gold standard, but invasive and subject to sampling error

Diagnostic accuracy of TE for fibrosis

S0-S2 stage VS **S3 stage**

TE-CAP

High diagnostic accuracy[6] with high sensitivity and specificity; HSROC: 0.85

Relatively low diagnostic accuracy[6] with lower sensitivity and specificity HSROC: 0.79

MRI-PDFF

High diagnostic accuracy for ≤S2 and ≥S3 with HSROC values of 0.93 and 0.91, respectively[6]

EPL for MAFLD associated with metabolic syndrome

Meta-analysis of RCTs comparing the effect of treatment with EPL + AD vs AD therapy alone[7]

Change in ALT (3 studies, N=371) mean treatment duration, 1.97 mo

Change in TG levels (4 studies, N=445) mean treatment duration, 2.1 mo

Change in total cholesterol level (3 studies, N=359) mean treatment duration, 2.27 mo

Key messages

MAFLD increases the risk of subclinical atherosclerosis, CAD, CVD events and mortality

Ultrasound is preferable for initial diagnosis, due to low expense and ease of access

MRI-PDFF is preferable for diagnosis with high sensitivity and high specificity across all fibrosis stages

ALT, alanine aminotransferase; AP, atherosclerotic plaque; CAD, coronary artery disease; CAP, controlled attenuation parameter; CIMT, carotid intima-media thickness; CP, carotid plaques; CVD, cardiovascular disease; CT, computed tomography; EPL, essential phospholipid; HSROC, hierarchical summary receiver operating characteristic curves; MAFLD, metabolic-associated liver disease; MRI, magnetic resonance imaging; NAFLD, non-alcoholic fatty liver disease; NASH, non-alcoholic steatohepatitis; NCP, non-calcified plaque; PDFF, proton density fat fraction; RCT, randomized controlled trial; TE, transient elastography; TG, triglyceride

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