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Background and Aims: Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) is an emerging indication for incretin-based therapies. As these treatments are increasingly adopted, interest has grown in understanding body composition changes accompanying weight reduction, particularly regarding skeletal muscle preservation. Since the clinical consequences of lean tissue loss may depend on baseline muscle reserves, we aimed to characterize body composition and muscle function in MASLD patients potentially eligible for incretin-based therapy.

Methods: In this prospective cross-sectional study, consecutive MASLD patients were enrolled at a tertiary referral center between 2025 and 2026. Participants underwent anthropometric assessment, bioelectrical impedance analysis (Akern®), and handgrip strength testing. Body composition was characterized using fat-free mass index (FFMI) and appendicular skeletal muscle mass index (ASMI). Low muscle mass was defined according to ESPEN-recommended cut-offs, while reduced muscle strength was identified according to EWGSOP2 criteria. Eligibility for incretin-based therapies was assessed using either weight-based criteria or liver disease-based criteria (AISF STEP-MASH criteria).

Results: After exclusion, 65 patients with MASLD were included. Median age was 63 years (IQR 55.0–71.0), median BMI 33.4 kg/m² (IQR 30.2–37.7), with a high prevalence of hypertension (69.2%) and dysglycaemia (70.8%), including type 2 diabetes in 49.2%. Liver disease severity was heterogeneous, with 16.9% of patients showing LSM <8 kPa, 63.1% between 8 and 20 kPa, and 20.0% >20 kPa. Fifty patients (76.9%) fulfilled weight-based eligibility criteria and 24 (36.9%) met STEP-MASH-based eligibility criteria. No patient met ESPEN criteria for low muscle mass and no participant had ASMI values below EWGSOP2 thresholds. Median FFMI and ASMI remained consistently above diagnostic cut-offs across all eligibility groups (FFMI 22.4–25.4 kg/m²; ASMI 8.8–10.2 kg/m²), suggesting substantial baseline lean tissue reserves. Reduced muscle strength was observed in a subset of patients, with low handgrip strength detected in 14.7% of men overall and more frequently among those meeting STEP-MASH-based eligibility criteria than in the weight-based subgroup (33.3% vs 13.0%).

Conclusions: MASLD patients meeting current eligibility criteria for incretin-based therapies generally show preserved muscle mass despite reduced muscle strength in a subset of individuals. Muscle function assessment may represent a practical first-line screening tool, while comprehensive body composition evaluation could be prioritized in older or more vulnerable patients. The relevance of this approach may increase if future indications expand to more advanced stages of liver disease.

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F-05

Biopsy Fragmentation Influences Steatosis Quantification Discordance in MASLD Diagnosis

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Rationale: Traditional liver biopsy adequacy criteria (i.e., portal tract number and biopsy length) are currently used for steato-sis liver disease (SLD) diagnosis. However, these criteria were developed for portal-based hepatitis diagnosis, whereas steatosis and steatohepatitis are mainly lobular events. In this study, we tested whether innovative (i.e., tissue fragment number, total area, weighted fragment length (WFL), weighted fragment area (WFA), and dispersed versus clustered spatial pattern) biopsy adequacy criteria are more supportive of MASLD pathology diagnosis and explain discordance between artificial intelligence (AI) and pathologist steatosis assessment.

Methods: Whole-slide images from 57 SLD liver biopsies were analyzed for steatosis estimates by an AI-based algorithm and a pathologist with dedicated training. Discordance between evaluators was defined as the absolute difference between the AI and pathologist steatosis percentage. Overall agreement was assessed with the intraclass correlation coefficient (ICC). Correlation of traditional and innovative liver biopsy metrics was assessed via Spearman correlation.

Results: Across the 57 SLD biopsies, median AI-estimated and pathologist steatosis assessments were 34.6% and 32.0%, respectively. Overall agreement between AI and pathologist assessment was high (ICC: 0.936). Among the evaluated liver biopsy adequacy criteria, the total number of fragments was positively correlated with absolute discordance (Spearman rho=0.882, p<0.001), indicating that higher fragmentation was associated with greater disagreement. Furthermore, WFL (rho=-0.822, p<0.001) and WFA (rho=-0.803, p<0.001) indicated that a smaller average fragment size was associated with higher AI-pathologist discordance. Spatial fragmentation pattern was also relevant: among cases with evaluable classification (i.e., with more than one fragment), a dispersed fragment pattern was associated with higher discordance (rho=0.588, p<0.001). In contrast, traditional adequacy or size metrics were not significantly associated with discordance, including portal tract number (rho=-0.111, p=0.409), portal tract density (rho=-0.135, p=0.318), total biopsy length (rho=0.122, p=0.367), and total biopsy area (rho=0.012, p=0.930).

Conclusion: In this SLD biopsy series, AI-pathologist steatosis agreement was high, but discordance was driven primarily by tissue fragmentation and related spatial dispersion rather than by portal tract count and biopsy length. These findings suggest that biopsy architecture should be incorporated into quality-control metrics for SLD steatosis assessment, particularly when highly fragmented samples are evaluated.

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F-06

Liver-oriented non-invasive tests and cardiovascular and liver-related outcomes in the UK Biobank

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