Identification of at-risk nonalcoholic steatohepatitis in lean individuals with multiparametric magnetic resonance imaging biomarker, corrected T1

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OBJECTIVES

- Approximately 7–20% of patients with nonalcoholic fatty liver disease (NAFLD) have lean body habitus.
- Corrected T1 (cT1) has been recognized in the Clinical Practice Update by the American Gastroenterological Association (AGA) as a tool to risk stratify lean individuals with NAFLD.
- **This study aims to assess the performance of cT1 in the diagnostic pathway to identify at-risk nonalcoholic steatohepatitis (NASH) in lean individuals.**

METHODS

- This study used data collected from a cohort of lean individuals (body mass index (BMI) < 25 kg/m^2) with suspected NAFLD from the U.K., U.S., and Japan.[1]
- Diagnostic accuracy and performance at predefined thresholds were investigated in the full cohort and a sub-group of patients with suspected at-risk NASH using vibration controlled transient elastography (VCTE) or FIB-4 results, based on the AGA diagnostic pathway.
- Performance was measured with the sensitivity (Sen), specificity (Spe), negative predictive value (NPV), and positive predictive value (PPV) for at-risk NASH.

RESULTS

Table 1. Characteristic of the patient population. The full cohort includes all the lean individuals, while the AGA pathway subgroup only included lean individuals with suspected at-risk NASH based on VCTE (≥ 8.6 kPa) or FIB-4 (≥ 2.67), or who were missing results for both of these noninvasive fibrosis tests.

Characteristic	Full cohort	Sub-group (after VCTE/FIB-4)
N, n	56	26
at-risk NASH	18%	35%
BMI, median [IQR] kg/m^2	22.8 [22.0–24.1]	23.1 [22.1–24.3]
Age, median [IQR] years	61 [52–72]	73 [61–77]
Type 2 diabetes mellitus	49%	58%

RESULTS

- In a cohort of lean individuals with NAFLD, cT1 had a high diagnostic accuracy (AUC = 0.88 [95% CI: 0.78–0.99]) to identify individuals with at-risk NASH.
- cT1 had a similarly high diagnostic accuracy (AUC = 0.84 [95% CI: 0.67–1.0]) in the AGA pathway subgroup.
- In the full cohort, elevated cT1 (≥ 800 ms) the Sen was 90%, Spe 63% and the NPV 97% to rule-out at-risk NASH, while at the threshold of cT1 ≥ 875 ms, Sen, Spe, NPV and PPV were 80%, 85%, 95% and 53%, respectively.
- In the AGA pathway subgroup, at elevated cT1 (≥ 800 ms) the Sen was 89%, Spe 35% and the NPV 86% to rule-out at-risk NASH, while at the threshold of cT1 ≥ 875 ms, Sen, Spe, NPV and PPV were 78%, 76%, 87% and 64%, respectively.

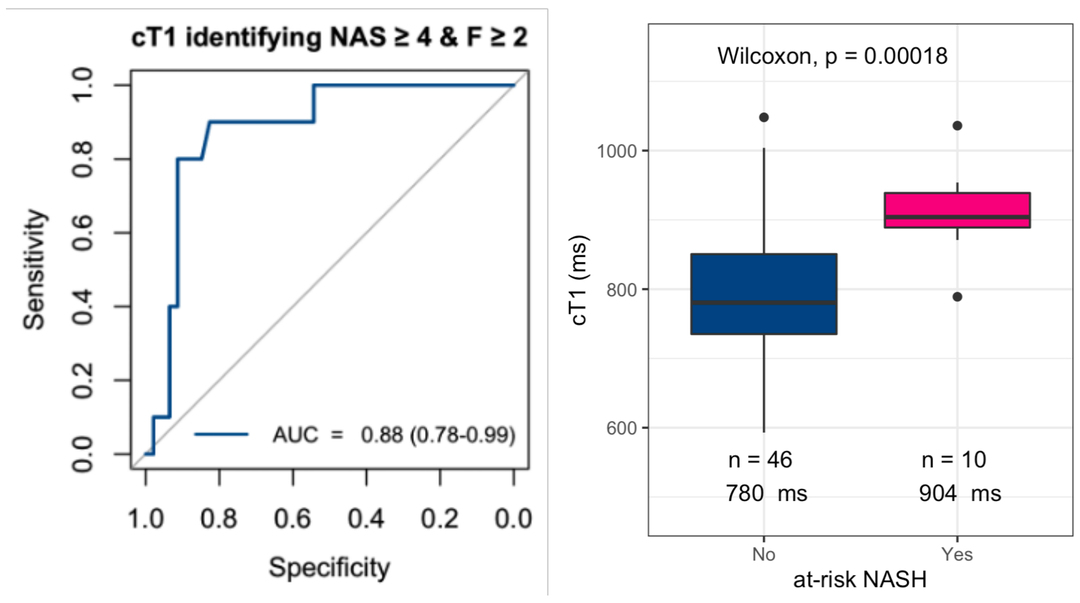

Figure 1 shows Median [IQR] levels of cT1 in lean individuals with (904 [50] ms) or without (780 [115] ms) at-risk NASH.

CONCLUSIONS

- A threshold of cT1 ≥ 875 ms can identify lean individuals with at-risk NASH with high accuracy and optimal performance.
- This result further supports the citation of cT1 in the AGA guidelines for identifying and risk-stratifying lean individuals with at-risk NASH early, which is crucial to avoid liver- and cardiovascular-related morbidity and mortality.

REFERENCES

1. Andersson A, et al., (2021) Clin Gastroenterol Hepatol.

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