Long-term prognosis of MAFLD patients according to non-invasive methods

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ABSTRACT

Objective

To demonstrate that LIVERFAS* Fibrosis score (LF-Fib) is a surrogate of liver biopsy (LB) for the estimation of liver fibrosis stage or more (TRF1), in type 2 diabetic (T2D) patients with better performances than liver stiffness measurement (LSM) by transient elastography and than Fib-4 index.

AIMS

- Patients:
  - Prospectively collected NAFLD patients from a tertiary Liver Center (Bordeaux, France) (JCT01249227)
  - Concomitant LB and LIVERFAS*; TE, Fib-4.
  - Transition rate to any fibrosis stage (TRF) was evaluated using modeling of hazard from birth to the age of the liver fibrosis estimation.
  - Cut-offs for minimal fibrosis, F1 stage:
    - LB SAF score: perisinusal zone 3 or portal fibrosis
    - LIVERFAS**: Fibrosis: 0.28; TE: 5.6 kPa, Fib-4: 1.45
- Statistics:
  - Cox Mantel Hazard Ratios (HR [95%CI]), logrank comparison p value between groups
  - Regression, Odds Ratio

Patients

- N=301 NAFLD patients from a tertiary Liver Center (Bordeaux, France) (JCT01249227)
- Concomitant LB and LIVERFAS*, TE, Fib-4.
- Transition rate to any fibrosis stage (TRF) was evaluated using modeling of hazard from birth to the age of the liver fibrosis estimation.
- Cox Mantel (95% CI):
  - Non-MF: F1: HR 1.75 (1.30 - 2.35) (p<0.0001), F2: HR 30.5 (4.30 - 225.4) (p<0.0001), F3: HR 1.284 (0.934 - 1.772) (p=ns)
- Non-MF: F0: HR 1.28 (0.93 - 1.77) (p=ns)
- Cox Mantel (95% CI):
  - Non-MF: FB 1.49 (1.02 - 2.15) (p=0.034)
  - Non-MF: Fib-4 1.45 (1.01 - 2.06) (p=0.04)
- Non-MF: SAF 1.31 (0.97-1.75) (p=ns)

Conclusion

- Liver-specific AI-based blood biomarkers, such as LIVERFAS*, allow:
  - Detection of progression from simple NAFL to NASH fibrosis, similar to liver histology
  - Better and earlier screening strategy for stratifying high-risk patients for NASH, as T2D aged ≥45 years or having co-morbidities as obesity or arterial hypertension
  - Improved estimation of elementary liver lesions with noninvasive standard-of-care

References

2. El Lattifah, A. et al. (2020) Hepatitis Med 9(3) 100156
3. Fuchs, S. et al. (2017) AIP Advances 7(7) 075085

Figures

1. Longitudinal Cohort Flow Chart
2. Liver Fibrosus Investigation
3. Noninvasive fibrosis
4. Vibration Controlled Transient Elastography (TE) by Fibroscan
5. LIVERFAS* Fibrosis, Orlando, Florida
6. Multivariate analysis in T2D NAFLD patients, LIVERFAS*, Fibrosis, Activity and Stages, high blood pressure and male gender were independently associated to the histological transition to fibrosis

BACKGROUND

Liver biopsy is not adapted to routine diagnosis due to the high prevalence of NAFLD, 40% sample-related variability and poor acceptance.

There is an urgent need for reliable non-invasive tools for differentiating NASH from NASH and for disease staging.

Liver enzymes as are often normal despite advanced fibrosis in T2D and therefore, cannot be used to stage NASH fibrosis.

LIVERFAS* (LF) is a serum 4I-based algorithm (CPT 0155U0) for assessing liver fibrosis along with steatopathies that demonstrated prognostic value to predict overall and liver-related morbidity.

RESULTS

- The Transition rate to fibrosis (HR [95%CI], logrank) as per LIVERFAS* score was similar to that of liver biopsy in both populations with or without T2D.
- Faster transition rate to F1 stage in patients without T2D compared to patients with T2D (logrank p<0.0001).
- Abnormal ALT (>30IU/l) is driving the transition to fibrosis in patients without T2D and has no impact in T2D.

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DISCLOSURES

- CPT fibrosis, Orlando, Florida
- Multivariate analysis in T2D NAFLD patients, LIVERFAS*, Fibrosis, Activity and Stages, high blood pressure and male gender were independently associated to the histological transition to fibrosis

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