

# Fasting vs non-fasting ?

## Assessment of the impact on LiverSTAT

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### BACKGROUND

LIVERSTAT is an AI-based proprietary technology conceived for the fast and easy triage of subjects with metabolic risk and suspected MAFLD/NAFLD.

- LIVERSTAT combines common blood biomarkers (lipid panel, liver enzymes, glucose and bilirubin) with patient's anthropometrics.
- Recent study validated LIVERSTAT with 100% confirmation rate with liver biopsy whenever there was agreement for presumed F3F4 fibrosis staging between LIVERSTAT and Fibroscan, regardless of FIB-4.

### AIMS

**To assess the impact of non fasting Glucose on the LIVERSTAT, in a real-world dataset from a large-scale screening study of 12611 patients (Innoquest SG )**

### METHODS

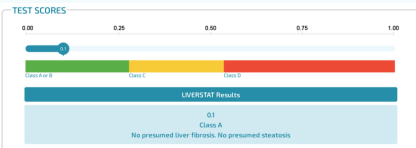
A known\* coefficient of variation was applied to the variable “GlucoseR” and the impact was assessed by the strength of concordance for LIVERSTAT classification (reference versus variated LIVERSTAT)

\* It has been previously described that Intra-individual fasting versus postprandial (variation after meal intake median total calories of the meal was 782 kilo-calories with a maximum of 1340 kcal) induces a CV of 0.31 or 1.08 mmol/l compared to the after 10 hours of night fasting. [Munteanu M et al. Comp Hepatol. 2004]

- LIVERSTAT was calculated using median BMI observed in the Asian population of NHANES study, 24.6 (females) and 25.8 (males)

**LIVERSTAT** (Fibronostics, Florida, US) is an AI-based blood test conceived to aid the MASLD risk stratification:

- Combines seven blood biomarkers: liver enzymes - GGT, AST, ALT -, lipid panel (total cholesterol, triglycerides), bilirubin and glucose with weight, height, age and gender
- Constructed and validated against liver biopsy (AUC for advanced fibrosis 0.81 and 0.76, respectively)
- Outperforms FIB-4: no indeterminate zone, less drawbacks related to age or type 2 diabetes (T2D)
- Provides the MASLD class based on the assessment of presumed fibrosis along with a quantitative score (0.00 to 1.00) and on the raw assessment of steatosis (no steatosis /≥5%)



- Class A** - No presumed liver fibrosis, No presumed steatosis
- Class B** - No presumed liver fibrosis, Presumed steatosis
- Class C** - Presumed liver fibrosis, mild or moderate
- Class D** - Presumed liver fibrosis, advanced (severe)

De Lédinghen V., et al. Hepatology (Suppl) 2020

### RESULTS

| Characteristics of the included population |                   |
|--------------------------------------------|-------------------|
| N=12626                                    | Medians (se) or % |
| Age, years                                 | 58 (0.14)         |
| Gender, male                               | 49.6 %            |
| Glucose fasting, mmol/L                    | 5.3 (0.02)        |
| Glucose post-prandial, mmol/L              | 6.38 (0.02)       |
| HbA1c                                      | 5.9 (0.01)        |
| Total Cholesterol, mmol/L                  | 4.9 (0.01)        |
| Triglycerides, mmol/L                      | 1.3 (0.01)        |
| ALT, IU/L                                  | 23 (0.2)          |
| CRP, mg/L                                  | 1.0 (0.03)        |
| Platelets x10 <sup>9</sup> /L              | 267 (1.0)         |

| Assessment of differences in fibrosis and steatosis scores |         |                   |
|------------------------------------------------------------|---------|-------------------|
|                                                            |         | Medians (se) or % |
| Median differences in fibrosis score                       | N=12611 | 0.056 (0.00)      |
| Median differences in steatosis score                      | N=12614 | 0.11 (0.00)       |
| Changes > than 10% in fibrosis score                       | N=12612 | 11.6%             |

#### Concordance analysis

| LIVERSTAT variated |         |         |         |         |       |
|--------------------|---------|---------|---------|---------|-------|
| LIVERSTAT REF      | CLASS A | CLASS B | CLASS C | CLASS D | Total |
| CLASS A            | 4733    | 621     | 108     | 0       | 5462  |
| CLASS B            | 0       | 3452    | 167     | 0       | 3599  |
| CLASS C            | 0       | 0       | 2661    | 82      | 2743  |
| CLASS D            | 0       | 0       | 0       | 808     | 808   |
|                    | 4733    | 4053    | 2936    | 890     | 12612 |

#### TABLE PERCENTAGE TABLE

| LIVERSTAT variated |         |         |         |         |        |
|--------------------|---------|---------|---------|---------|--------|
| LIVERSTAT REF      | CLASS A | CLASS B | CLASS C | CLASS D | Total  |
| CLASS A            | 37.53%  | 4.92%   | 0.86%   | 0.00%   | 43.31% |
| CLASS B            | 0.00%   | 27.21%  | 1.32%   | 0.00%   | 28.54% |
| CLASS C            | 0.00%   | 0.00%   | 21.10%  | 0.65%   | 21.75% |
| CLASS D            | 0.00%   | 0.00%   | 0.00%   | 6.41%   | 6.41%  |
|                    | 37.53%  | 32.14%  | 23.28%  | 7.06%   | 100%   |

The number of rows with at least one missing value is 1090

### RESULTS

**No major concordance**, despite applying maximum glucose variance levels

- Measurement #1 after 10h fasting → 5.3 mmol/L
- Measurement #2 30min after meal → 6.4 mmol/L

➤ **Recommendation to fast before LiverSTAT blood draw**

➤ **No requirement to fast before LiverSTAT blood draw**

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## Result

Scores and classification

Robust charts providing the level of fibrosis, inflammation and steatosis

## Contact Information

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