LiverPRO outperforms FIB-4 at predicting liver-related events in a cohort of 470,795 individuals.

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EASL CONGRESS 2024
Milan, Italy
5–8 June

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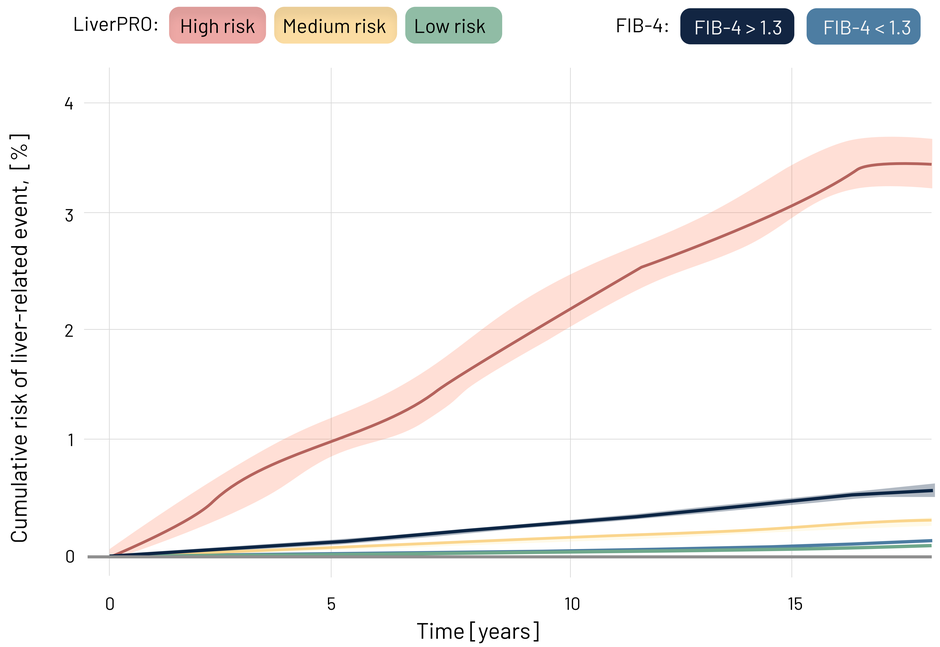
Comparison of cumulative risk of liver-related events between LiverPRO and FIB-4



The LiverPRO segmentation of risk groups correlates strongly with the cumulative risk of having a liver related event, total liver-related events in cohort is 2,515.

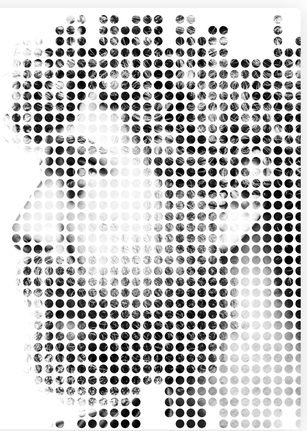
Introduction

LiverPRO

A new diagnostic platform for point-of-care screening. Powered by standard and available blood-based biomarkers.

- CE-certified data-driven diagnostic tool.
- Relies on nine biomarkers that are readily available in primary care.
- Integrates into existing IT infrastructure and primary care workflows.
- Provides actionable risk scores and recommendations to simplify diagnosis.

CE 2797 bsi ISO 13485 Quality Management for Medical Device companies



Results

Performance comparison of LiverPRO and FIB-4.

LiverPRO

86% [0.85 - 0.87]

LiverPRO's C-statistic in predicting a liver related event.

65.2

LiverPRO's Hazard Ratio.

542%

Increased risk of experiencing liver-related event if classified as LiverPRO high risk vs. LiverPRO low risk.

FIB-4

78% [0.76 - 0.79]

FIB-4's C-statistic in predicting a liver related event.

41.1

FIB-4's Hazard Ratio.

150%

Increased risk of experiencing a liver-related event if classified as FIB-4 >1.3 vs. a low FIB-4.

Study details

Target segments

- General UK patient population
- Patients aged 40-69

Population size

- 457,152
- UK Biobank

Data points included

- Blood
- Detailed information about lifestyle
- Information on hospitalisation
- Information on diagnoses from ICD-10 codes
- Information on mortality

Liver related events considered

- Esophageal and gastric varices, bleeding
- Spontaneous bacterial peritonitis
- Liver failure
- Portal hypertension
- Hepatorenal syndrome
- Hepatocellular carcinoma

Data source

biobank uk
Enabling scientific discoveries that improve human health

01 Background

Steatotic liver disease (SLD) poses a growing healthcare burden, often going undetected until advanced stages.

Improved prognostic tools are urgently needed. LiverPRO is a machine learning based tool that has shown strong diagnostic capabilities, and promises to facilitate earlier detection.

However, its prognostic potential remains unexplored.

02 Aim

This study compares the prognostic accuracy of LiverPRO to Fibrosis-4 Index (FIB-4) for prediction of liver-related events on patients registered in the UK Biobank.

03 Methods

This is a retrospective study on data from the UK Biobank collected between 2006 and 2010 and followed until 2020.

The outcome was the risk of liver-related events, analysed using Cox regression and cumulative incidence curves, and the overall prognostic accuracy was presented with Harrell's C statistic and Hazard Ratios (HR).

04 Implications and conclusion

This study demonstrates the superior prognostic accuracy of LiverPRO over FIB-4 in predicting liver-related events on a sample size of 470,795.

This underscores its potential as a vital tool in early detection and management of liver disease.

The marked difference in hazard ratios highlights the need for integrating advanced non-invasive diagnostic methods like LiverPRO in routine clinical practice, to improve risk stratification and patient care in SLD.

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EASL CONGRESS 2024 Milan, Italy 5–8 June
DOI: 10.3252/pso.eu.EASL2024.2024
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