Comparative assessment of noninvasive methods (NIMs) - LIVERFASt, liver stiffness measurement (LSM) with transient elastography (TE, Fibroscan), ELF and FiB-4 - in prospective cohort with chronic liver diseases (CLD) from a tertiary liver center

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INTRODUCTION

- CLD-related mortality in Thailand is increasing due to high prevalence of obesity and not eradicated chronic viral hepatitis B (CHB) and C (CHC)
- **LIVERFASt™** (Fibronostics, Florida, US) is a new point-of-care proprietary technology to assess quantitatively (normalized score from 0.00 to 1.00) liver fibrosis, steatosis and steatohepatitis in MAFLD patients. (1,3)
- **LIVERFASt™** is a blood-based serum biomarker that demonstrated prognostic value for liver-related events and overall mortality (1,4)

AIMS

In a prospective tertiary cohort with CLD, to assess clinical performance against liver biopsy of different NIMs :

1. **For advanced and bridging fibrosis: LIVERFASt Fibrosis test, Enhanced liver fibrosis score (ELF), FIB-4 and LSM using vibration controlled transient elastography (VCTE).**
2. **For steatosis (mild, moderate and marked): LIVERFASt Steatosis test and CAP (Fibroscan) in NAFLD patients, including a control group with CLD without steatosis (S0)].**

METHODS

Patients

- Patients with NAFLD, CHB and CHC were prospectively included from a tertiary center [Khon Kaen University Hospital in Thailand].
- All patients had simultaneous liver biopsy, blood biomarkers (LIVERFASt, FIB-4 and ELF) and LSM using VCTE
- Biopsy staging was as per METAVIR in CHB/CHC patients and NASH-CRN in NAFLD patients.
- Statistics were descriptive and using area under ROC [AUROC (95%CI)].

CONCLUSIONS

- **LIVERFASt is a blood biomarker for fibrosis and steatosis staging fibrosis and steatosis with similar performances to VCTE/CAP in patients with CLD.**
- **LIVERFASt and VCTE outperformed ELF for staging advanced liver fibrosis.**
- **LIVERFASt can be an alternative to imaging methods for stratifying patients with NAFLD and NASH.**

RESULTS

STUDY DESIGN

N=192 patients with NAFLD, CHB, CHC
prospectively included had liver biopsy, LIVERFASt, FIB4 and LSM.

Liver Biopsy

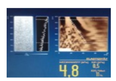
N=157 patients had ELF
along with other NIMs and liver biopsy

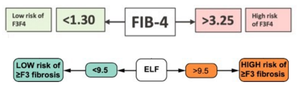
LIVERFASt™

FibroScan®

FIB-4

ELF™ Test
Enhanced Liver Fibrosis



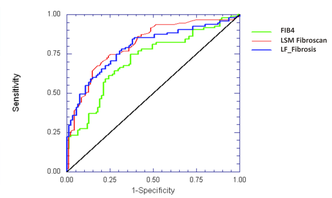


CHARACTERISTICS OF INCLUDED PATIENTS

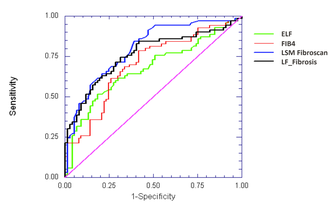
N=92	Medians (range or SE) or %
Male gender, %	52.7%
Median (range) Age	50 (20-69)
BMI, kg/m2	23.9 (15.2-48.8)
HbA1c	5.5%
Etiologies	
NAFLD	26.4%
CHB	23.9%
CHC	49.8%
LIVERFASt biopsiy	
Advanced fibrosis	50.2%
Bridging fibrosis	21.8%
Cirrhosis	9.5%
Severe NAI	49.5%
Moderate steatosis	66.&% (among NAFLD)
Fibroscan	
Liver stiffness measurement, KPa	7.5 (0.56-75)
CAP, dB/m	216 (100-400)
LIVERFASt medians (se)	0.29 (0.03)
Fibrosis score	0.29 (0.03-0.99)
Activity score	0.29 (0.01-0.94)
Steatosis score	0.35 (0.02-1.00)
ELF	7.93 (3.97-12.98)
FIB-4	1.44 (0.14-7.52)

COMPARATIVE PERFORMANCES FOR FIBROSIS BETWEEN NIMs

Overall cohort N=192	AUROC (95% CI) for ADVANCED fibrosis	P value vs. LF
LIVERFASt Fibrosis (LF)	0.81 (.67 - .85)	
LSM (VCTE)	0.70 (.62 - .77)	ns
FIB-4	0.71 (.63 - .77)	P< 0.05

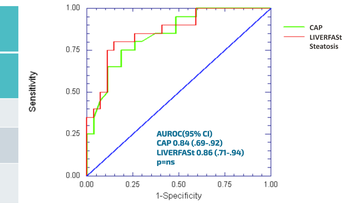


Overall cohort N=147	AUROC (95% CI) for ADVANCED fibrosis	P value vs. LF
LIVERFASt Fibrosis (LF)	0.77 (.61- .79)	
LSM (VCTE)	0.79 (.71-. 85)	ns
FIB-4	0.69 (.61 - .77)	P< 0.01
ELF	0.63 (.53 - .71)	P< 0.01

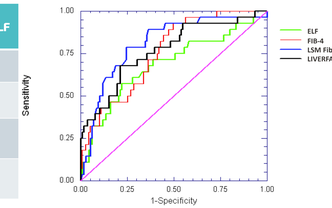


COMPARATIVE PERFORMANCES FOR STEATOSIS BETWEEN LIVERFASt AND CAP (Fibroscan)

NAFLD and control cohort (30 NAFLD, 17 controls S0) N=47	AUROC (95% CI)		
	LIVERFASt Steatosis	CAP (Fibroscan)	P value
Mild steatosis ≥S1	0.86 (.70-.93)		ns
Moderate steatosis ≥S2	0.86 (.71-.94)	0.84 (.69-.92)	ns
Marked steatosis S3	0.81 (.62-.9§)	0.81 (.64-.91)	ns



ELF cohort N=147	AUROC (95%CI) for BRIDGING fibrosis	P value vs. LF
LIVERFASt Fibrosis (LF)	0.77 (.65-.85)	
LSM (VCTE)	0.82 (.71-.88)	ns
FIB-4	0.75 (.63-.83)	ns
ELF	0.64 (.49-.77)	ns



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