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NONINVASIVE INITIATION AND MONITORING OF THE THERAPY WITH TNR-BETA AGONIST RESMETIROM (RT) USING LIVERFAST, FIB-4 AND VIBRATION-CONTROLLED TRANSIENT ELASTOGRAPHY (VCTE, FIBROSCAN) IN PATIENTS WITH MASH.

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Monday, 11/10/2025
8:00 am - 5:00 pm

Track: MASLD and MASH

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INTRODUCTION

Resmetirom therapy (RT) was recently approved by the FDA for non-cirrhotic MASH with fibrosis.

The impact of RT on NITs has not been assessed in real-life patients.

LIVERFASt (Fibronostics, Florida, US) is a new blood-based AI-test that assesses liver fibrosis, activity, and steatosis, potentially useful in initiating and monitoring patients during Resmetirom therapy.

AIM

1. To assess he dynamic of LIVERFAST, FIB-4 and VCTE during longitudinal monitoring of patients ongoing Resmetirom therapy.
2. To estimate the fibrosis progression rate (PR) from baseline to repeated NIT.

Between baseline and repeated measurements in the overall population and according to the RT dose and concomitant therapy with GLP-1 Receptor Agonist (GLP1RA).

METHODS

Patients on RT with baseline and repeated LIVERFASt, VCTE and FIB4 have been included retrospectively.

LIVERFASt, a blood-based test, generates scores (0.00-1.00) proportional to the severity of fibrosis, activity, and steatosis.

Vibration Controlled Transient Elastography (VCTE)

Liver stiffness measurement (LSM) < 30% IQR/median ratio included

Statistics

NITs dynamics have been assessed using Kaplan Meier non-parametric statistics censored at -10% PR occurrence from t0, Tukey-Kramer Multiple-Comparison Test (repeated measurements ANOVA), descriptive and subgroup analysis (dose and GLP-1 receptor agonists (GLP-1RA) analysis.

RESULTS

All patients have been included retrospectively.

86 patients have been eligible with baseline LIVERFASt without RT discontinuation (62% 80mg-dose), 39% male, 55% T2D, 46% on GLP-1RA, mean (se) age 62.4 (1.3), BMI 33.7 (0.7), ALT 44 (4).

NITs had baseline and repeated tesing: N=67 had FIB-4, N=44 LIVERFASt and N=30 LSM (VCTE)

Description of the included population

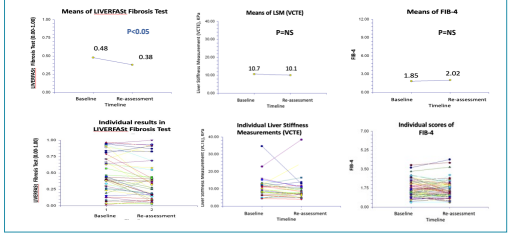
N=86	Overall	Group on 80mg dose (62%)	Group on 100mg dose (38%)
Age	62.4 (1.3)	60.8 (1.5)	63.8 (2)
Male	39%	39%	50%
BMI	33.7 (1.3)	29.9 (0.6)	39.7 (2.7)
Type 2 Diabetes	55%	46%	63%
GLP-1RA	46%	40%	57%
ALT	44 (4)	49 (5)	38 (5)
FIB-4	1.79 (0.14)	1.86 (0.21)	1.64 (0.12)
Baseline prevalence F2F3 Using VCTE Using LIVERFASt	 44% 61%	 46% 58%	 40% 65%
Median (max) delay, months baseline-to-repeated testing Using VCTE Using LIVERFASt Using FIB-4	 7.6 (3.1) 3.3 (0.3) 6.7 (0.5)	 6.9 (4.4) 3.0 (0.4) 6.3 (0.6)	 8.0 (4.5) 3.9 (0.6) 7.4 (0.8)

Biomarker Dynamics	Mean (SE) Baseline assessment	Mean (SE) Re-assessment	Probability Level Bonferroni (All-Pairwise) Multiple Comparison Test
LIVERFASt N=44			
LIVERFASt Fibrosis Test (0-1)	0.48 (0.02)	0.38 (0.02)	**<0.001**
LIVERFASt Steatosis Test (0-1)	0.50 (0.02)	0.42 (0.02)	**<0.05**
LIVERFASt Activity Test (0-1)	0.45 (0.02)	0.42 (0.02)	NS
GGT, IU/l	68 (5)	41 (5)	<0.001
Total billirubin,mg/dl	0.68 (0.03)	0.58 (0.03)	<0.05
Alpha2 Macroglobulin, mg/dl	274 (4)	258 (4)	<0.01
Apolipoprotein A1, mg/dl	131 (2.5)	146 (2.5)	<0.001
Haptoglobin, mg/dl	137 (3)	147 (3)	<0.05
ALT, IU/l	53 (4)	40 (4)	<0.05
AST, IU/l	44 (3)	36 (3)	NS
Triglycerides, mg/dl	144 (5)	108 (5)	<0.0001
Total cholesterol, mg/dl	168 (2.4)	146 (2.4)	<0.0001
Blood glucose, mg/dl	108 (2)	112 (2)	NS
BMI	33.4 (0.2)	33.3 (0.2)	NS
Fibroscan N=30			
Liver Stiffness Measurement (VCTE), KPa	10.7 (0.8)	10.1 (0.8)	NS
Controlled Attenuation parameter (CAP), dB/m	301 (7)	299 (7)	NS
FIB-4 N=67			
Platelet count	230 (3)	224 (3)	NS
FIB-4	1.85 (0.13)	2.02 (0.13)	NS

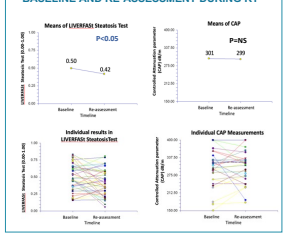
Non-invasive tests Dynamics according to the resmetirom dose	Mean (SE) Baseline assessment	Mean (SE) Re-assessment	Probability Level Bonferroni (All-Pairwise) Multiple Comparison Test
LIVERFAST N=44			
LIVERFAST Fibrosis Test (0-1) 80 mg, n=27 100 mg, n=17	 0.49 (0.02) 0.46 (0.03)	 0.35 (0.02) 0.42 (0.03)	 **<0.001** NS
LIVERFASt Steatosis Test (0-1) 80 mg, n=27 100 mg, n=17	 0.49 (0.03) 0.51 (0.04)	 0.38 (0.03) 0.48 (0.04)	 **<0.05** NS
LIVERFAST Activity Test (0-1) 80 mg, n=27 100 mg, n=17	 0.46 (0.03) 0.43 (0.04)	 0.39 (0.03) 0.48 (0.04)	 NS NS
Fibroscan N=30			
Liver Stiffness Measurement 80 mg, n=14 100 mg, n=16	 9.2 (1.2) 12 (1.1)	 8.2 (1.2) 11.8 (1.1)	 NS NS
CAP by Fibroscan, dB/m 80 mg, n=14 100 mg, n=16	 280 (10) 318 (9)	 267 (10) 326 (9)	 NS NS
FIB-4 N=67			
FIB-4 80 mg, n=39 100 mg, n=28	 2.03 (0.17) 1.59 (0.20)	 2.09 (0.17) 1.93 (0.20)	 NS NS

Non-invasive tests Dynamics according to the association with GLP-1 RA	Mean (SE) Baseline assessment	Mean (SE) Re-assessment	Probability Level Bonferroni (All-Pairwise) Multiple Comparison Test
LIVERFAST N=44			
LIVERFASt Fibrosis Test (0-1) Resmetirom alone, n=23 GLP1 RA + Resmetirom, n=21	 0.43 (0.02) 0.53 (0.03)	 0.34 (0.02) 0.43 (0.03)	 <0.05 <0.05
LIVERFASt Steatosis Test (0-1) Resmetirom alone, n=23 GLP1 RA + Resmetirom, n=21	 0.55 (0.03) 0.44 (0.03)	 0.44 (0.03) 0.40 (0.03)	 <0.05 NS
LIVERFASt Activity Test (0-1) Resmetirom alone, n=23 GLP1 RA + Resmetirom, n=21	 0.47 (0.03) 0.43 (0.03)	 0.41 (0.03) 0.43 (0.03)	 NS NS
Fibroscan N=30			
Liver Stiffness Measurement Resmetirom alone, n=16 GLP1 RA + Resmetirom, n=14	 8.7 (1.1) 12.9 (2.1)	 8.3 (1.1) 12.2 (2.4)	 NS NS
CAP by Fibroscan, dB/m Resmetirom alone, n=16 GLP1 RA + Resmetirom, n=14	 280 (9) 324 (9)	 290 (9) 307 (9)	 NS NS
FIB-4 N=67			
FIB-4 Resmetirom alone, n=37 GLP1 RA + Resmetirom, n=30	 1.85 (0.18) 1.85 (0.20)	 2.22 (0.18) 1.78 (0.20)	 NS NS

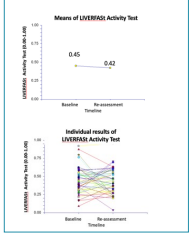
DYNAMICS OF LIVERFAST FIBROSIS TEST, VCTE AND FIB-4 SCORES BETWEEN BASELINE AND RE-ASSESSMENT DURING RESMETIROM THERAPY (RT)



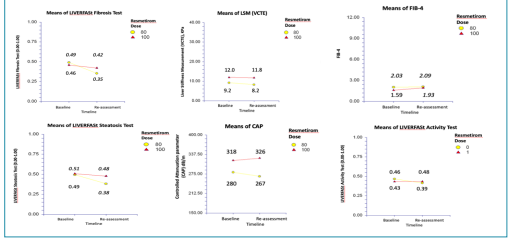
DYNAMICS OF LIVERFAST STEATOSIS TEST AND CAP (FIBROSCAN) SCORES BETWEEN BASELINE AND RE-ASSESSMENT DURING RT



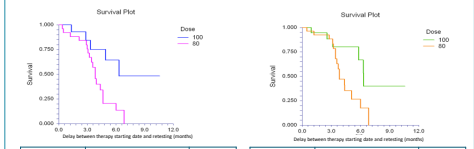
DYNAMICS OF LIVERFAST ACTIVITY TEST DURING RT



DYNAMICS OF LIVERFAST , VCTE AND FIB-4 DURING THERAPY ACCORDING TO RESMETIROM DOSE



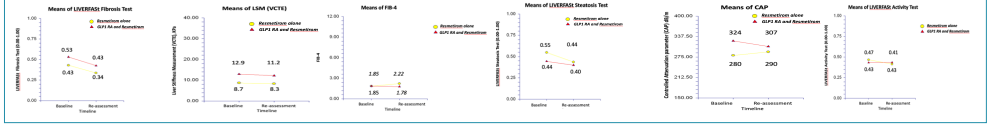
CUMULATIVE INCIDENCE OF ACHIEVING 10% REDUCTION IN LIVERFAST FIBROSIS AND STEATOSIS TESTS



Resmetirom dose group	Cumulative incidence of 10% improvement of fibrosis according to LIVERFASt		Logrank p value
	3 months	6 months	
80mg group	23.8%	79.2%	0.02
100mg group	20.7%	37.5%	

Resmetirom dose group	Cumulative incidence of 10% improvement of steatosis according to LIVERFASt		Logrank p value
	3 months	6 months	
80mg group	11.7%	73.5%	0.03
100mg group	11.8%	33.3%	

DYNAMICS OF LIVERFAST, VCTE AND FIB-4 ACCORDING TO ASSOCIATION TO GLP-1 RECEPTOR AGONISTS



CONCLUSIONS

Initiation of Resmetirom therapy based on MASH assessment using LIVERFASt, FIB4 and VCTE is efficient and allows further non-invasive monitoring.

LIVERFASt is an efficient monitoring tool of fibrosis and steatosis and significant improvement, higher than 10% in LIVERFASt scores being observed since 3rd month of Resmetirom therapy, mainly in the 80mg group.

FIB-4 and LSM (VCTE) scores showed limited change at reassessment, suggesting lower ability to detect early fibrosis or steatosis improvement.

REFERENCES

Alkhouri N, Mantry P, Gonzalez HC, et al. J Gastrointest Liver Dis 2025; 34; ePub ahead of printing DOI: 10.15403/jgld-6432

Decraecker M, Dutartre D, Hiriart JB, Aliment Pharmacol Ther. 2022 Mar;55(5):580-592.

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DISCLOSURES

MM, JL: Fibronosctics, New Orleans, LA, US