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**JORNADAS DE
AVANCES EN**

HEPATOLOGIA

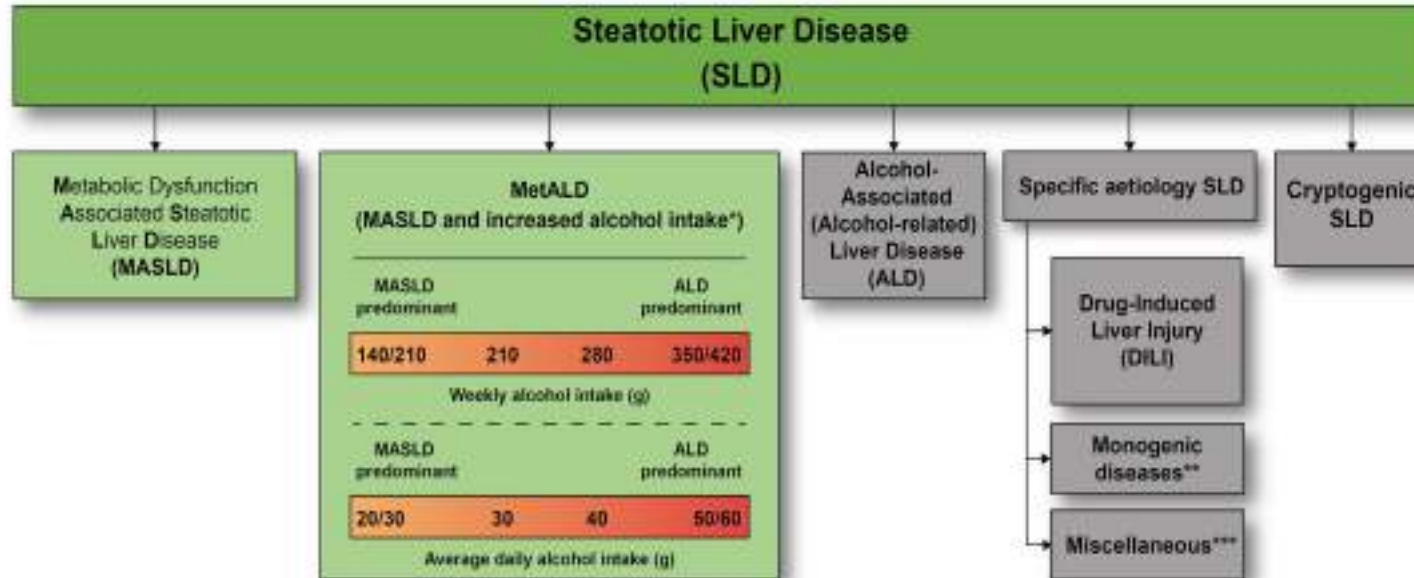
PROGRAMA DE DOCTORADO

Biomedicina, Investigación Traslacional y Nuevas Tecnologías en Salud.

**Fenotipado y
estratificación del
riesgo en MASLD**



Javier Crespo, MD, PhD
Profesor de Medicina. Universidad de
Cantabria.
Instituto de Investigación Valdecilla. IDIVAL.
Santander. España.



*Weekly intake 140-350g female, 210-420g male (average daily 20-50g female, 30-60g male)

**e.g. Lysosomal Acid Lipase Deficiency (LALD), Wilson disease, hypobetalipoproteinemia, inborn errors of metabolism

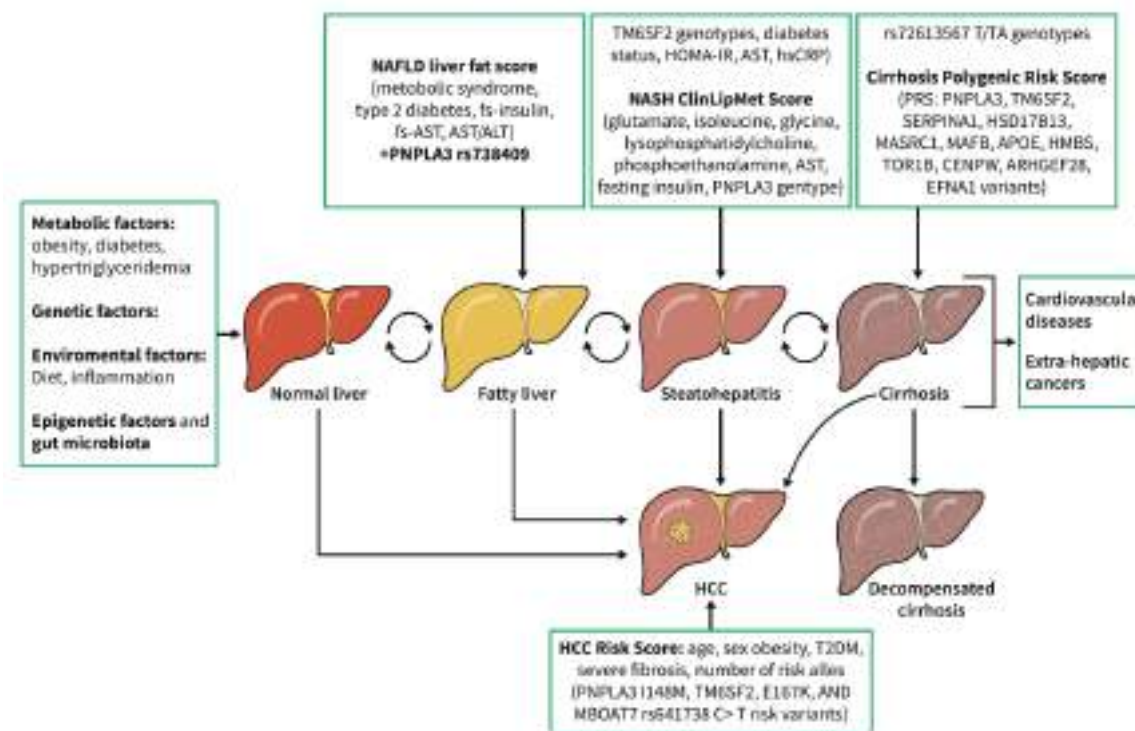
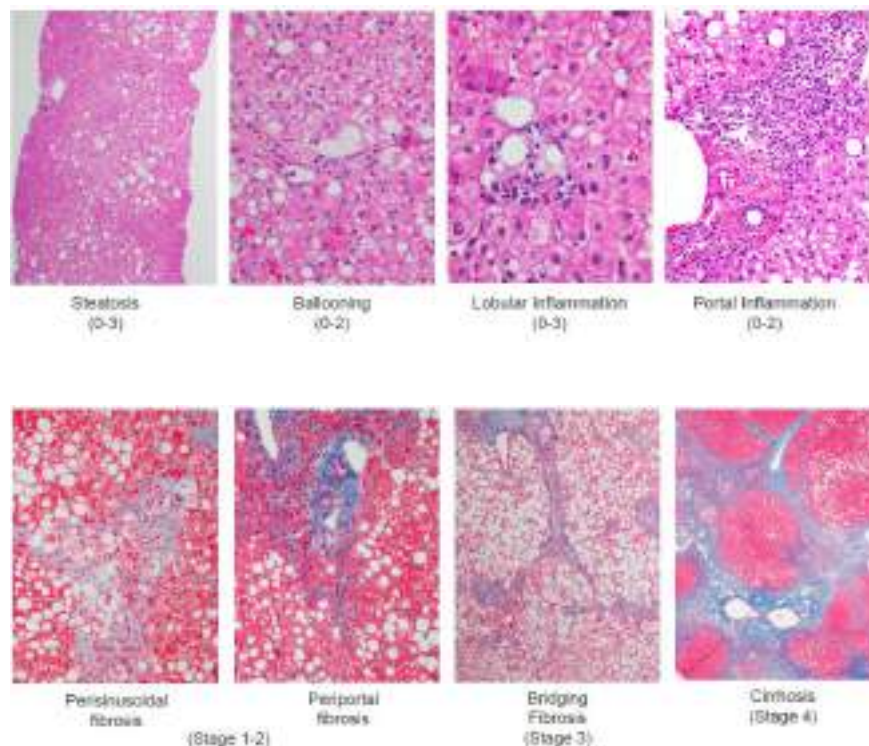
***e.g. Hepatitis C virus (HCV), malnutrition, celiac disease

Adult Criteria

At least 1 out of 5:

- ☐ BMI ≥ 25 kg/m² [23 Asia] **OR** WC > 94 cm (M) 80 cm (F) **OR** ethnicity adjusted
- ☐ Fasting serum glucose ≥ 5.6 mmol/L [100 mg/dL] **OR** 2-hour post-load glucose levels ≥ 7.8 mmol/L [≥ 140 mg/dL] **OR** HbA1c $\geq 5.7\%$ [39 mmol/L] **OR** type 2 diabetes **OR** treatment for type 2 diabetes
- ☐ Blood pressure $\geq 130/85$ mmHg **OR** specific antihypertensive drug treatment
- ☐ Plasma triglycerides ≥ 1.70 mmol/L [150 mg/dL] **OR** lipid lowering treatment
- ☐ Plasma HDL-cholesterol ≤ 1.0 mmol/L [40 mg/dL] (M) and ≤ 1.3 mmol/L [50 mg/dL] (F) **OR** lipid lowering treatment

¿Cual es el mejor algoritmo para el diagnóstico de MASLD?



Esteatosis
Inflamación
Balonización
Fibrosis

Fenotipo del paciente

Variabilidad historia natural
Comorbilidades
Complicaciones.....

Diagnóstico esteatosis

1. Diagnóstico indirecto esteatosis mediante índices bioquímicos compuestos.
2. Diagnóstico indirecto esteatosis mediante pruebas de imagen.
 - Ecografia abdominal
 - CAP
 - TAC
 - RNM - PDFF

Table 1. Indices for diagnosis of steatosis.

INDICES	FORMULA	CUTOFFs	SENSITIVITY (%)	SPECIFICITY (%)
Hepatic Steatosis Index (HSI)	8 x ALT/AST ratio + BMI (+2, if DM; +2, if female)	30 (low cutoff) 36 (high cutoff)	93 45	40 93
Fatty Liver Index (FLI)	$\exp(n)/1 + \exp(n) \times 100$ $(n) = 0.953 \times \ln(\text{TG}) + 0.139 \times \text{BMI} + 0.718 \times \ln(\text{GGT}) + 0.053 \times \text{waist circumference} - 15.745$	10 (low cutoff) 60 (high cutoff)	95 44	29 91
SteatoTest	Proprietary formula (a2-macroglobulin, haptoglobin, apolipoprotein A1, GGT, bilirubin, ALT, cholesterol, triglycerides, glucose, BMI, age, gender)	0.3 (low cutoff) 0.7 (high cutoff)	90 46	54 88
NAFLD Liver Fat Score	$-2.89 + 1.18 \times \text{Metabolic Syndrome (Yes: 1, No: 0)} + 0.45 \times \text{Type 2 Diabetes (Yes: 2, No: 0)} + 0.15 \times \text{Insulin} + 0.04 \times \text{AST} - 0.94 \times \text{AST/ALT}$	-0.640	86	71
Lipid Accumulation Product (LAP)	LAP (men)= waist circumference – 65 LAP (women)= waist circumference - 58	20 (low cutoff) 80 (high cutoff)	99 43	16 94

- Prueba de imagen de elección en caso de sospecha diagnóstica de NAFLD.
- Amplia disponibilidad, bajo coste y seguridad.
- S 85% y E 94% para detectar esteatosis moderada-severa.
- Detecta esteatosis cuando el contenido de grasa hepática es > 20%.
- Limitación en sujetos con obesidad mórbida.
- Variabilidad intra e interobservador.

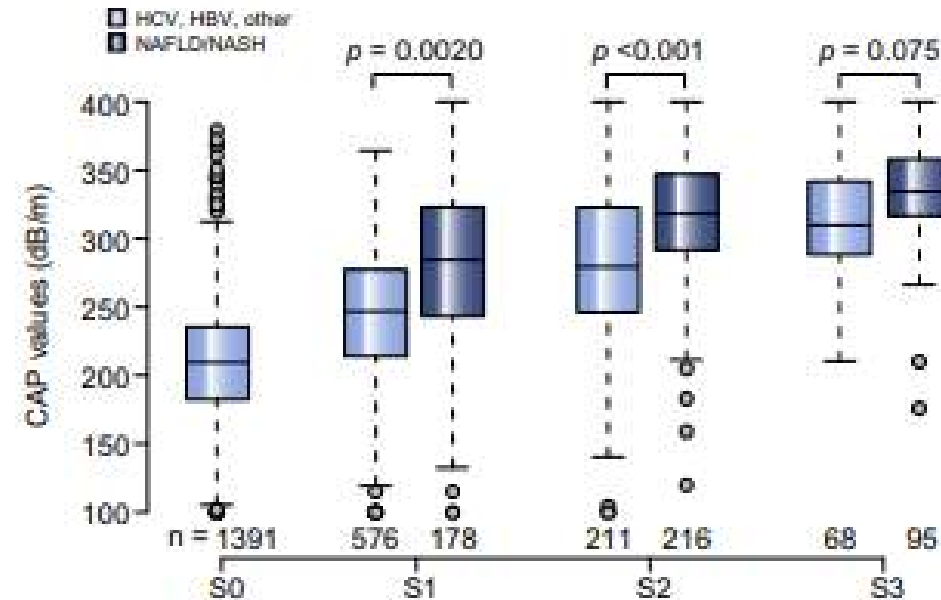


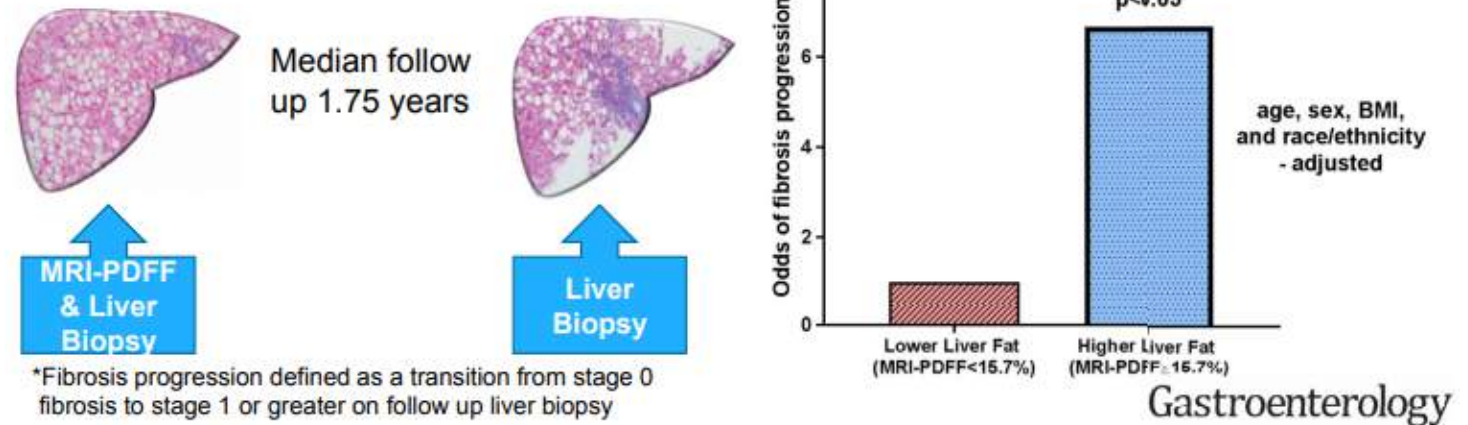
Table 2. Diagnostic performance. Results of the receiver operating characteristic (ROC) analysis are presented based on a bootstrap method. Optimal cut-offs are based on the maximal sum of sensitivity and specificity (Youden Index).

	S0 vs. S1-S3	S0-S1 vs. S2-S3	S0-S2 vs. S3
AUC	0.823 (0.809-0.837)	0.865 (0.850-0.880)	0.882 (0.858-0.906)
Sensitivity	0.688 (0.600-0.750)	0.773 (0.690-0.838)	0.882 (0.765-0.956)
False negative rate (1-sensitivity)	0.312 (0.250-0.400)	0.227 (0.162-0.310)	0.118 (0.044-0.235)
Specificity	0.822 (0.761-0.897)	0.812 (0.749-0.879)	0.776 (0.720-0.821)
False positive rate (1-specificity)	0.178 (0.103-0.239)	0.188 (0.121-0.251)	0.224 (0.179-0.280)
Optimal cut-off, dB/m	248 (237-261)	268 (257-284)	280 (268-294)

- Método no invasivo derivado de la resonancia magnética para evaluar la esteatosis hepática.
- Propiedad fundamental del tejido que refleja la concentración de triglicéridos móviles dentro de ese tejido.
- Expresado en %. Rango de 0-100%
- Se asocia con el grado de esteatosis histológica.
- Estimación objetiva y cuantitativa del grado de esteatosis.
- Gran precisión diagnóstica con independencia de otros parámetros de NASH.
- Superior a otras pruebas de imagen.
- No afectada por la obesidad.
- Permite monitorizar el efecto de los tratamientos.

Tang A et al. Radiology 2013

Higher liver fat on MRI-PDFF is associated with fibrosis progression* in NAFLD



Ajmera V et al. Gastroenterology 2018

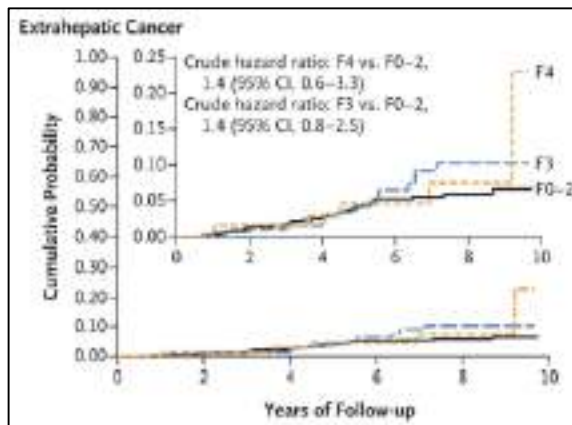
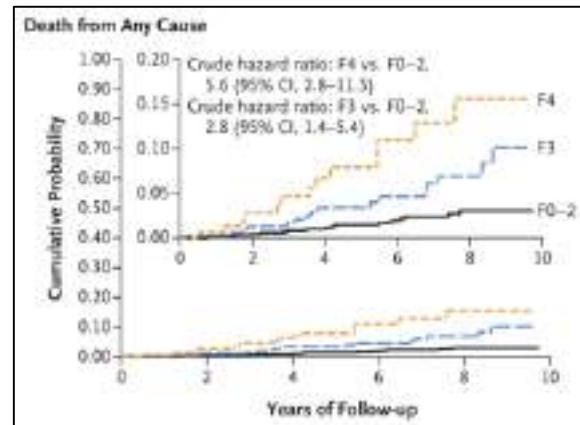
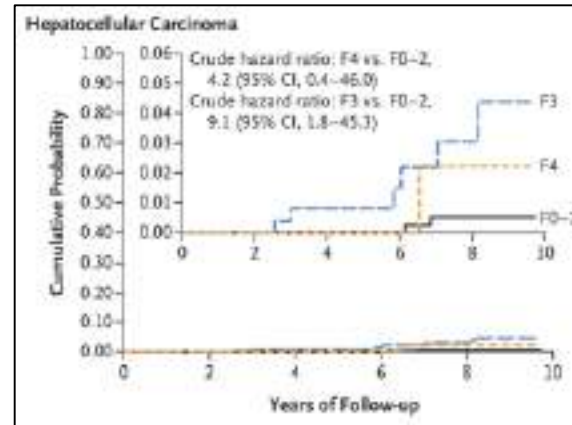
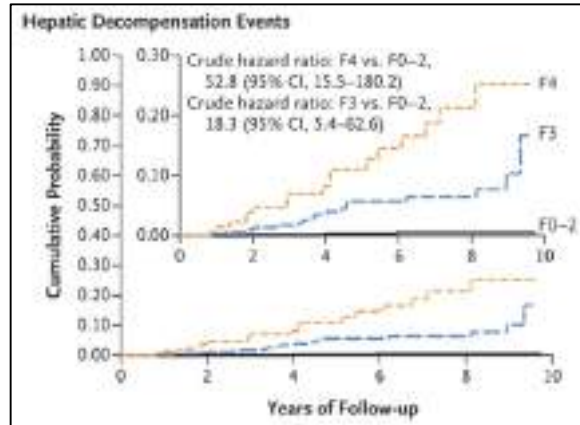
> Dig Liver Dis. 2022 Sep;54(9):1209-1214. doi: 10.1016/j.dld.2022.03.013. Epub 2022 Apr 12.

Comparison of non-invasive fibrosis scores to predict increased liver stiffness in the general population with unknown liver disease: Searching for the primary physician's best friend

Pablo Coste ¹, Elba Llop ¹, Cristie Perelló ¹, Marta Hernández ¹, Marta López ¹, Javier Abad ¹, Carlos Ferre ¹, José Luis Martínez ¹, Natalia Fernández ¹, José Luis Calleja ²

Diagnóstico fibrosis

Como fenotipar las NAFLDs: Fibrosis



- Estudio prospectivo y multicéntrico de resultados clínicos en 1773 pacientes con NAFLD diagnosticados por biopsia hepática.
- La incidencia de complicaciones relacionadas con el hígado aumentó con el grado de fibrosis.
- La mortalidad por todas las causas aumentó con el aumento de los grados de fibrosis.
- La incidencia de cánceres no hepáticos fue similar en todos los grados de fibrosis.
- Los grados de fibrosis F3 y F4 se asociaron con un mayor riesgo de complicaciones hepáticas y mortalidad por todas las causas.

Como fenotipar las NAFLDs: Fibrosis

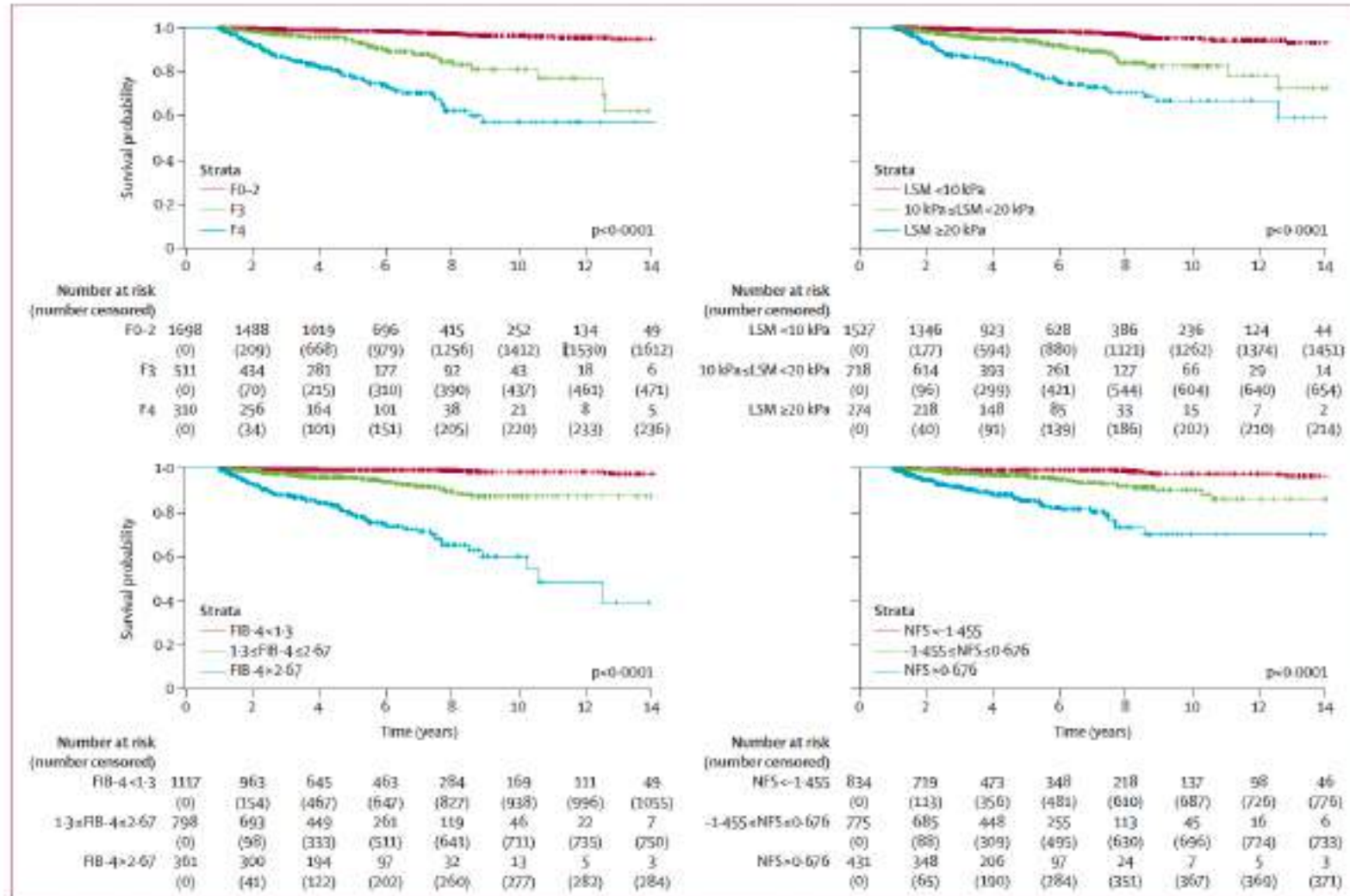
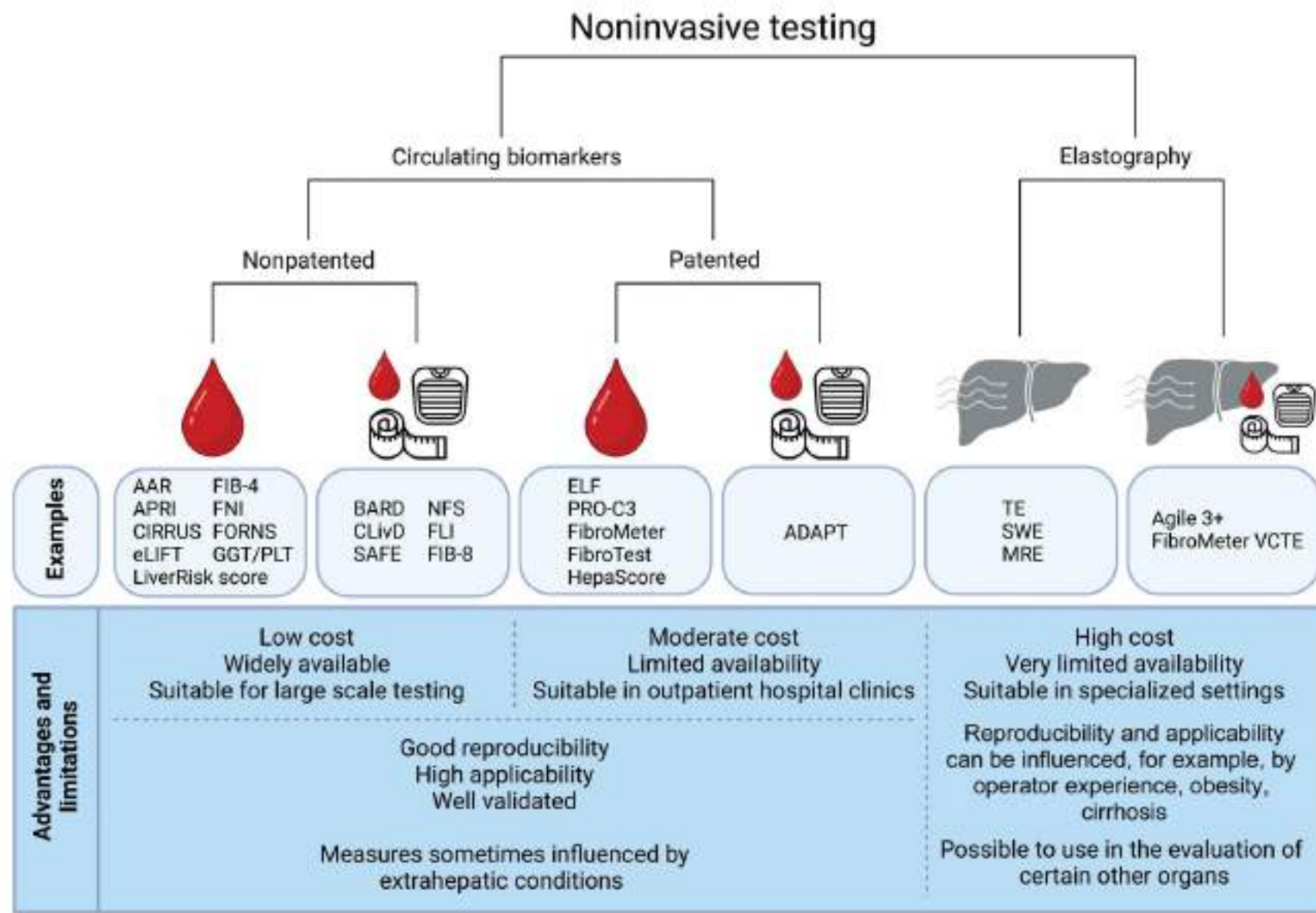


Figure 2: Estimates of aggregated survival probabilities for participant groups stratified by cutoffs extracted from the literature

(A) Histologically assessed fibrosis. (B) LSM-VCTE. (C) FIB-4. (D) NFS. p values were calculated using stratified log-rank tests. LSM-VCTE= liver stiffness measurement by vibration-controlled transient elastography. FIB-4= fibrosis-4 index. NFS= non-alcoholic fatty liver disease fibrosis score.



MODELO	VARIABLES	CUTOFFs	AUROC ($\geq$ F3)	Se (%)	Sp (%)
FIB-4	Edad, AST, ALT, plaquetas	1,30 (low cutoff) 2,67 (high cutoff)	0,86	74 33	71 98
NFS	Edad, hiperglucemia, IMC, AST/ALT, albúmina, plaquetas	-1,455 (low) 0,675 (high)	0,84	90 67	60 97
APRI	AST, plaquetas	1	0,80	27	89
Hepamet score	Edad, género, HOMA, AST, albúmina, plaquetas, diabetes	0,12 (low) 0,47 (high)	0,87	75 35	75 97
BARD score	IMC, AST/ALT, diabetes	2	0,81	89	44
ELF	Edad, ácido hialurónico, TIMP-1, PIIINP	8,5 (low) 11,3 (high)	0,90	83	97
FibroTest	α 2- macroglobulina, haptoglobina, GGT, bilirrubina, apolipoproteína	0,3 (low) 0,7 (high)	0,92	77 15	77 90
FibroMeter	Plaquetas, índice protrombina, AST, α 2- macroglobulina, edad, ácido hialurónico, urea	0,61	0,90	81	84
Hepascore	Edad, género, bilirrubina, ácido hialurónico, α 2- macroglobulina	0,44	0,81	75	84
ADAPT	Edad, diabetes, PRO-C3, plaquetas	6,3287	0,87	92	73

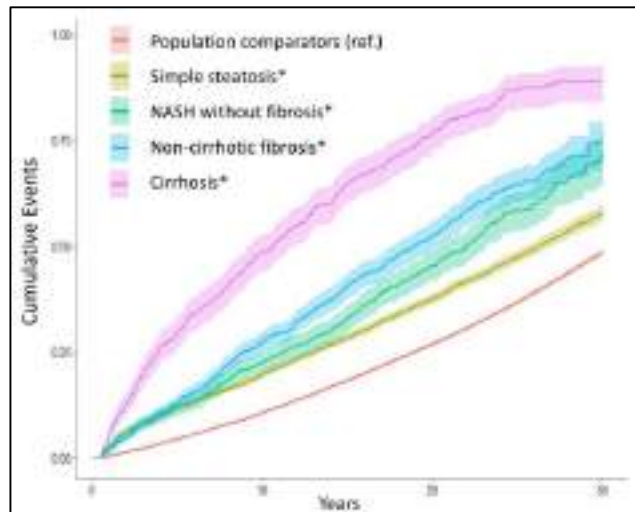
TEST	MECHANISM	CUTOFFs	AUROC ($\geq$ F3)	Limitations
Vibration-controlled transient elastography (VCTE)	Measures the velocity of an elastic shear wave that propagates across the liver	8 kPa (low) 12 kPa (high)	0.90	Confounded by active hepatitis, food intake, congestive heart failure, biliary obstruction, and the degree of hepatic steatosis; less applicable and reliable in severe obesity
Point shear-wave elastography (pSWE)	Detects localized tissue displacement by ultrasound wave	9 kPa (low) 13 kPa (high)	0.80-0.90	Reliability criteria not well defined; probably affected by the same confounders as VCTE, though success rate is higher than VCTE in obese patients
2-dimensional shear-wave elastography (2D-SWE)	Captures propagation of shear waves in real time	9 kPa (low) 13 kPa (high)	0.80-0.98	Reliability criteria not well defined; probably affected by the same confounders as VCTE
Magnetic resonance elastography (MRE)	Images propagation of shear waves in the liver	2,55 kPa (low) 3,63 kPa (high)	0.89-0.96	Probably affected by the same confounders as VCTE and iron content; costly; not widely available; some patients may have contraindications to magnetic resonance imaging

¿Podemos mejorar los resultados del FibroScan?

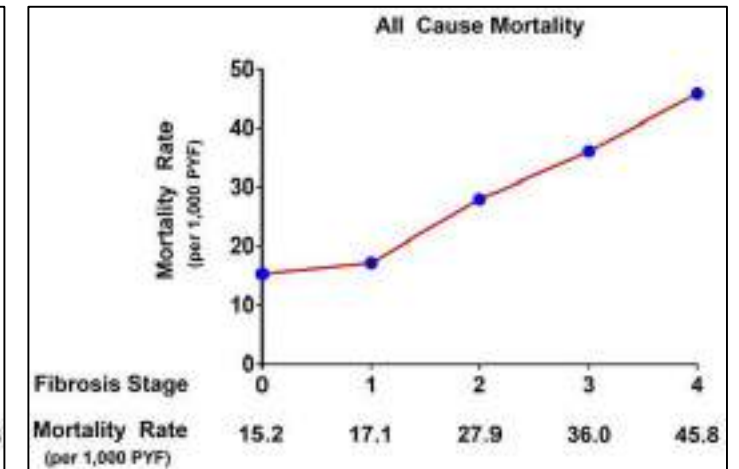
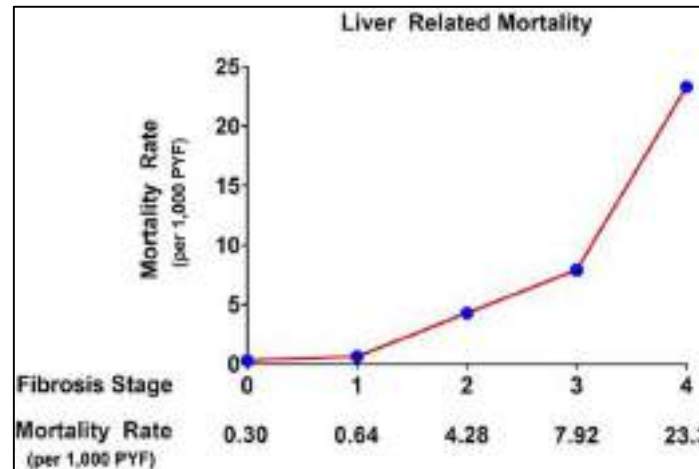


Diagnóstico At-risk MASH

At-risk MASH = MASH with NAFLD activity score (NAS) ≥ 4 and fibrosis stage ≥ 2



Increased morbidity and mortality from liver-related causes and non-hepatic malignancies in patients with NAFLD, even in the absence of fibrosis in the initial biopsy.



Patients with NASH and at least stage 2 fibrosis have a significantly higher risk of liver-related and overall morbidity and mortality.

TEST	PARAMETERS	CUTOFFs	Strengths/limitations
FibroScan-AST (FAST)	VCTE, CAP, AST	< 0,35 ≥ 0,67	≤0,35: Se 91% y NPV 90% ≥0,67: Sp 87% y PPV 69%
MRI-AST (MAST)	MRI-PDFF, MRE, AST	≤ 0,165 ≥ 0,242	≤0,165: NPV 98,1% ≥0,242: PPV 50%
MRE combined with FIB-4 (MEFIB)	MRE, FIB-4	FIB-4 < 1,6 + MRE < 3,3 FIB-4 ≥ 1,6 + MRE ≥ 3,3	Sequential approach >90% PPV
Metabolomics-advanced steatohepatitis fibrosis score (MASEF)	Metabolomics test, BMI, AST, ALT	< 0,258 ≥ 0,513	<0,258: Se 89% y NPV 92% ≥0,513: Sp 88% y PPV 60,3%

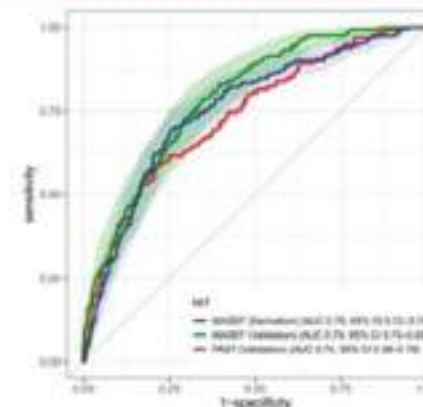
Serum Identification of At-Risk MASH: The Metabolomics-Advanced Steatohepatitis Fibrosis Score (MASEF)

Derivation cohort
(n=790)

Validation cohort
(n=565)



MASEF Score test:
A blood test for the diagnosis of
at-risk MASH patients:
MASH + NAS ≥ 4 and
significant fibrosis (F ≥ 2)



Score	N	Sample	ROC area	Sensitivity	Specificity	PPV	NPV
MASEF	790	Derivation	0.756	0.694	0.744	0.534	0.852
MASEF	565	Validation	0.789	0.782	0.652	0.481	0.879
FAST	311	Validation	0.736	0.585	0.790	0.667	0.726

The MASEF score is blood-based test that non-invasively identifies patients with at-risk MASH

MASEF score could be used alternatively to LSM by VCTE in the algorithm that is currently recommended by several guidance publications

Nouredin M, Truong E, Mayo R, Martínez-Arranz I, Mincholé I, Banales JM, Arrese M, Cusi K, Arias-Loste MT, Bruha R, Romero-Gómez M, Iruzubieta P, Aller R, Ampuero J, Calleja JL, Ibañez-Samaniego L, Aspichueta P, Marín-Duce A, Kushner T, Ortiz P, Harrison SA, Anstee QM, Crespo J, Mato JM, Sanyal AJ. Serum identification of At-Risk MASH: The Metabolomics-Advanced steatohepatitis fibrosis score (MASEF). Hepatology. 2024.

Graphical Abstract (for review)
HEPAmet



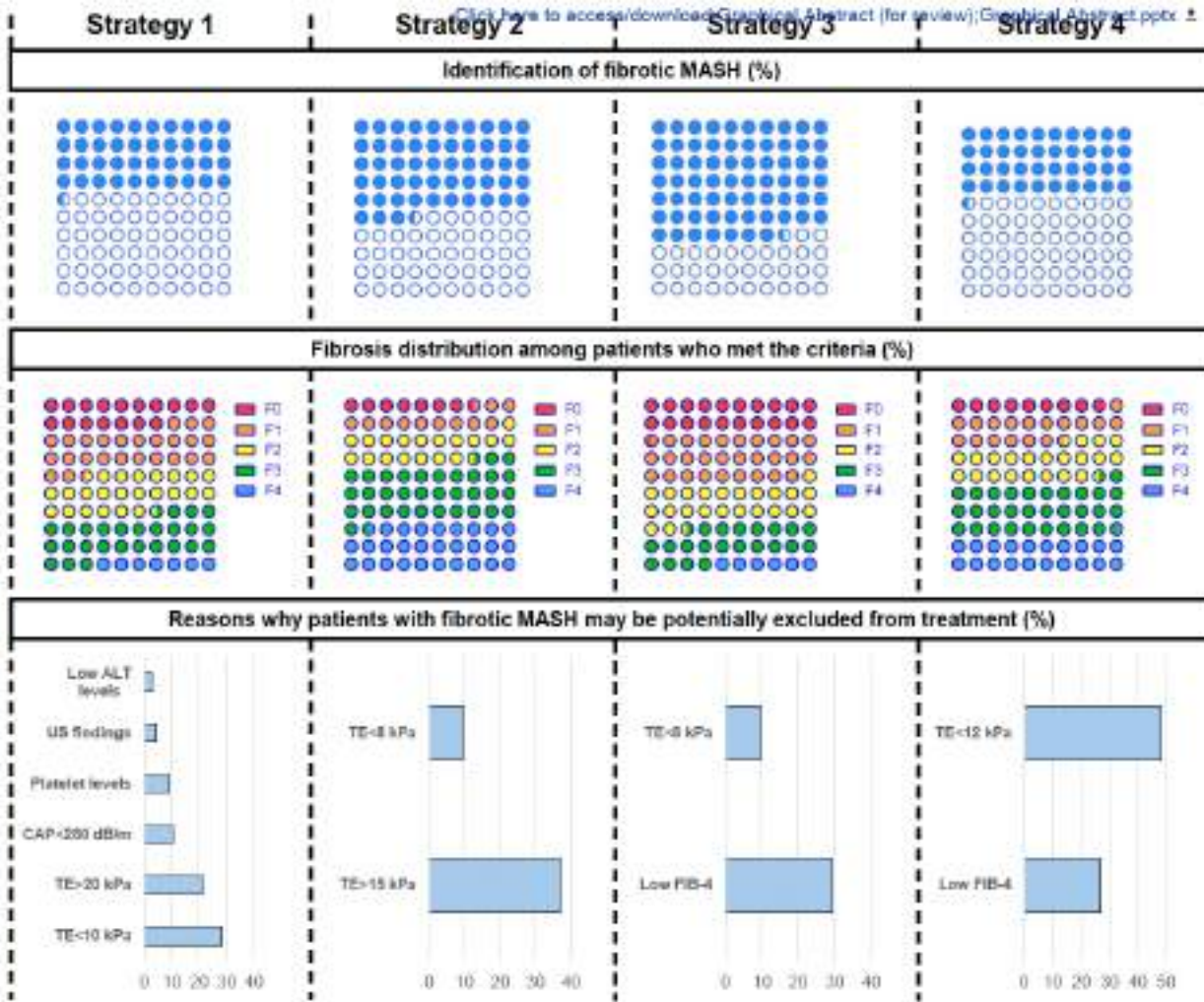
Biopsy-proven MASLD patients (N=1281)

Male sex, 54%
Age, 55 years
Obesity 60%
Type 2 DM 47%



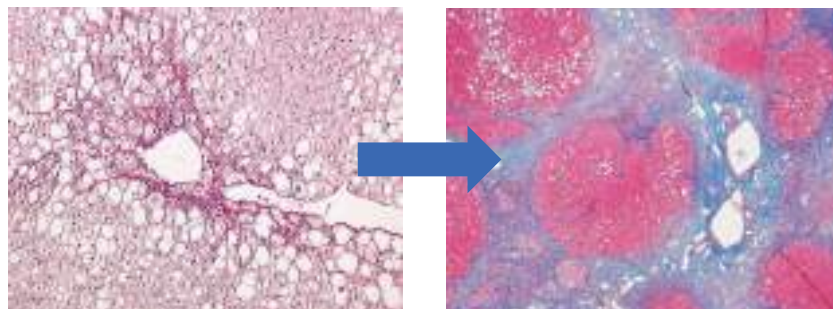
Fibrotic (F2-F3) MASH
21.9% (n=281)

Strategies evaluated for drug therapy indication in MASLD	Proposed criteria
Neureddin et al. criteria for treatment (Strategy 1)	CAP>280 dB/m ALT >20 U/L in men and 17 U/L in women TE<10 kPa and TE<20 kPa *Exclusion criteria: signs of cirrhosis or portal hypertension by ultrasound, and platelets < 140 (x 10 ⁹ /L)
AASLD Practice Guidance for treatment (Strategy 2)	TE<8 kPa and TE< 15 kPa
EASL guidelines for referring patients to a specialized unit (Strategy 3)	FIB-4>2.67 FIB-4 1.30-2.67 and TE>8 kPa
AASLD guidelines for referring patients to a specialized unit (Strategy 4)	FIB-4>2.67 FIB-4 1.30-2.67 and TE>12 kPa



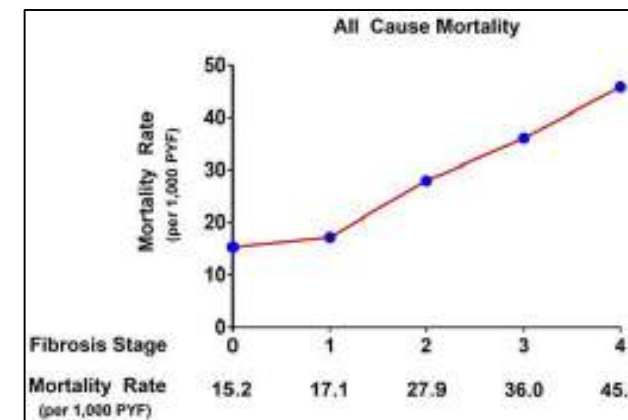
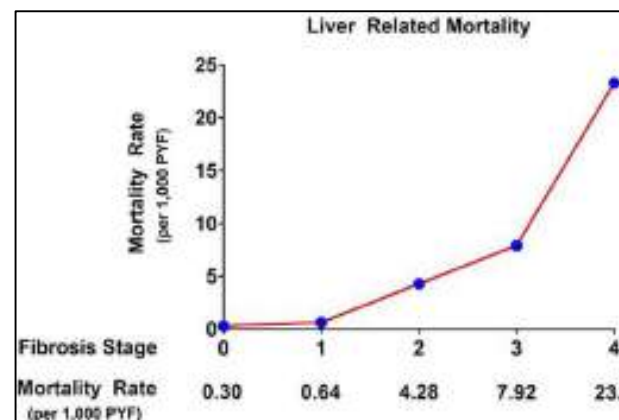
Diagnóstico progresión / regression MASLD

MASLD / EHmet. Una enfermedad potencialmente progresiva.



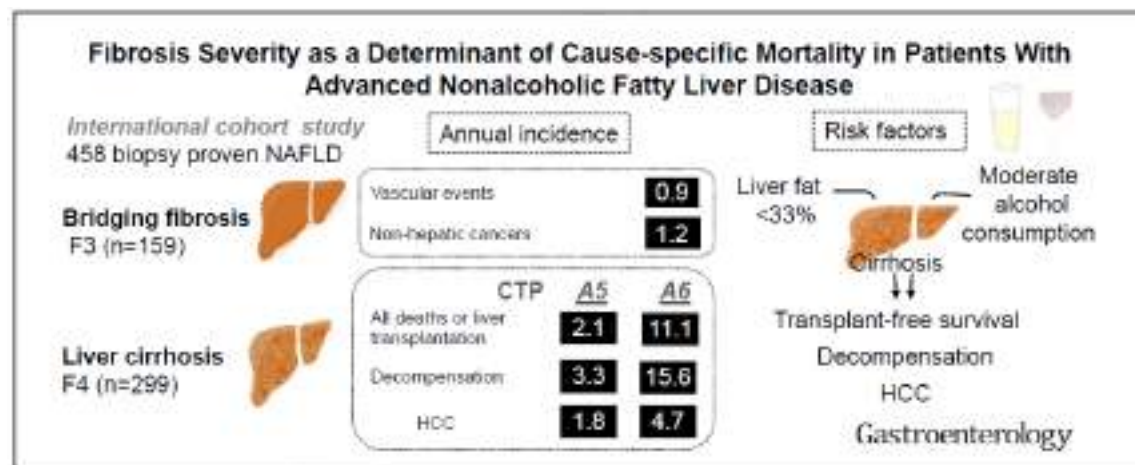
FIBROSIS

CIRRHOSIS



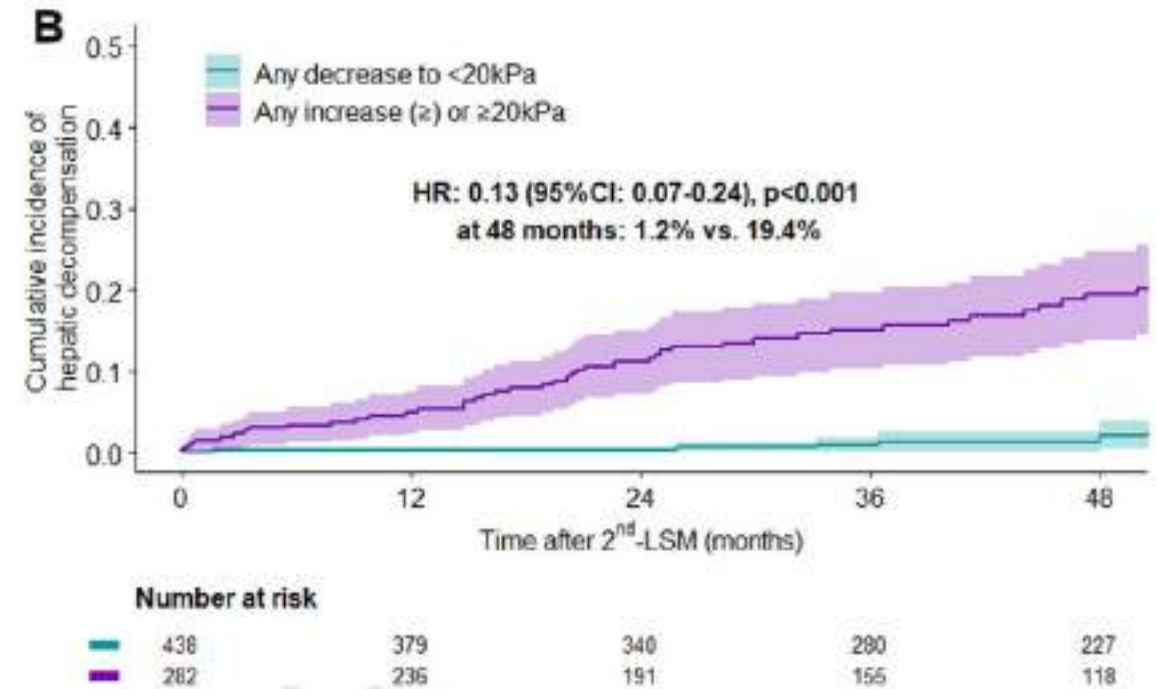
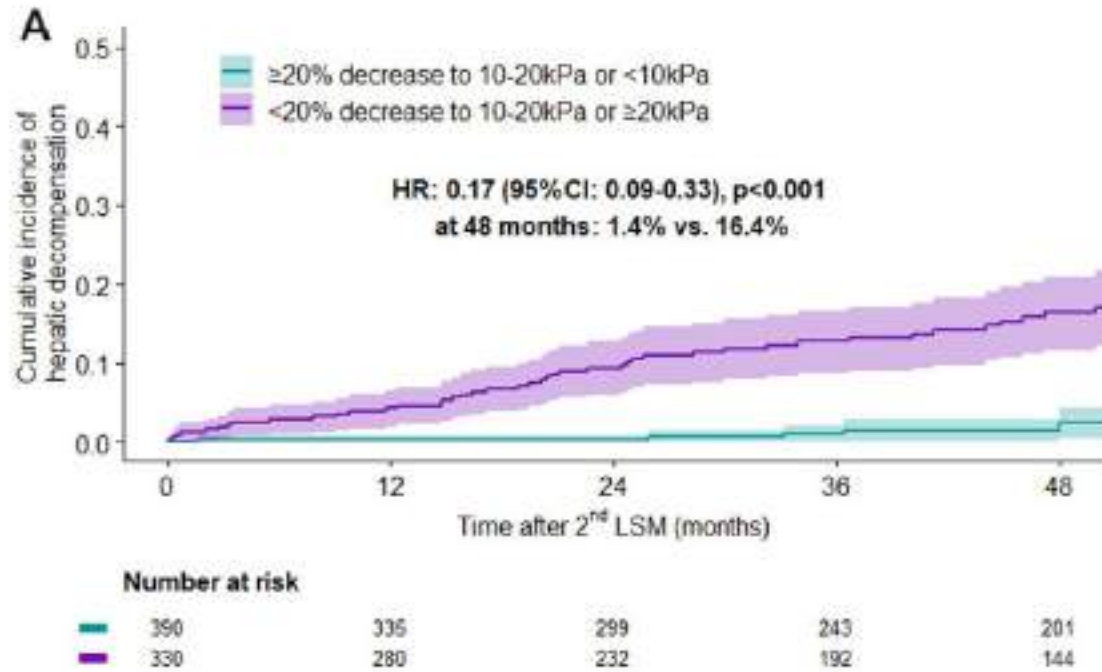
Liver fibrosis is the main predictor of hepatic and overall mortality

Dulai PS et al. Hepatology 2017



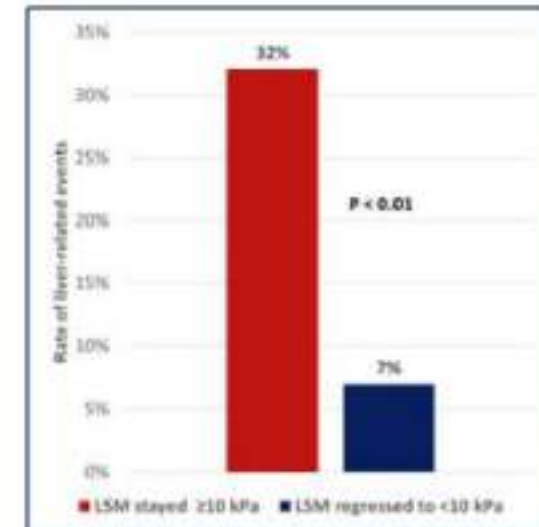
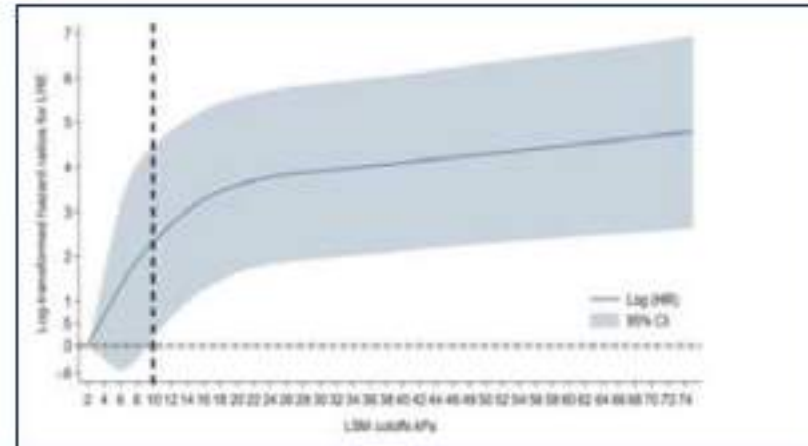
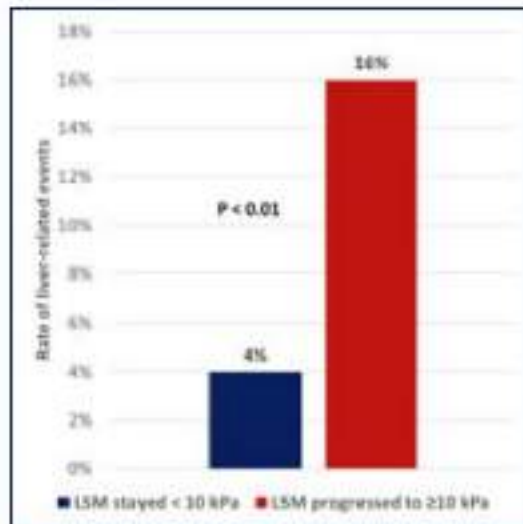
Patients with established cirrhosis predominantly develop hepatic events, and their mortality is mostly due to liver-related causes.

Vilar-Gomez E, Calzadilla-Bertot L, et al. Gastroenterology 2018



- 1,403 adult participants in NASH CRN studies
- Annual prospective follow-up with annual VCTE exam
- 4.4 years mean follow-up with 89 liver-related events (LRE)

Risk of LRE begins to rise at LSM 10 kPa



Progressors to LSM ≥10 kPa
Adj.HR: 4.0, 95% CI [1.8-8.9]

400% ↑

Risk of LRE

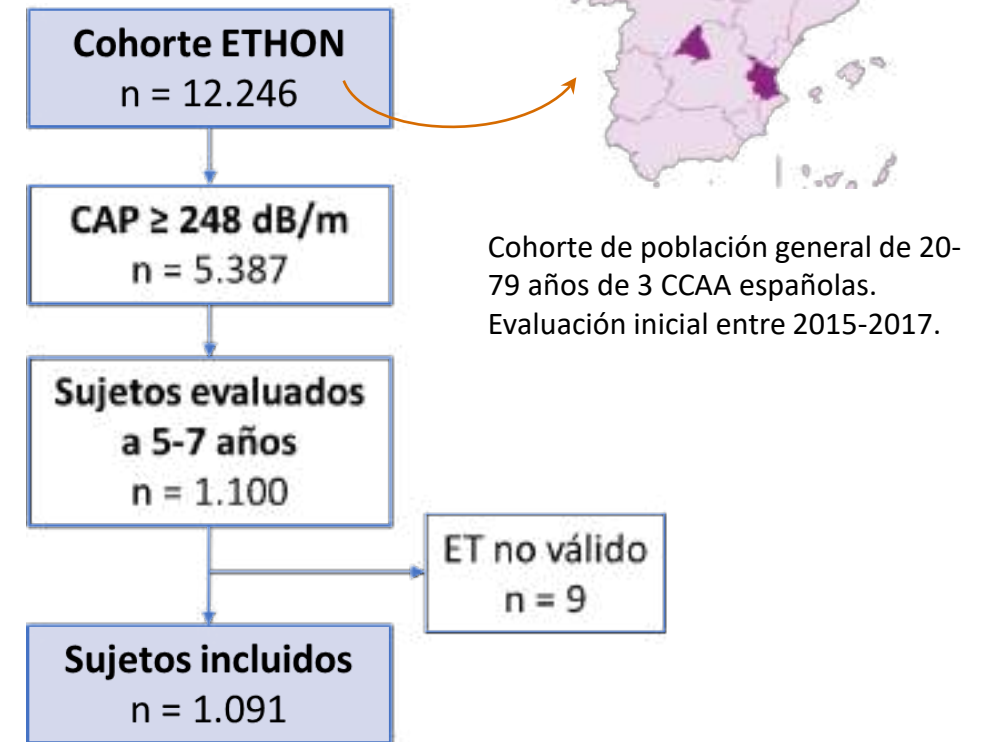
Regressors to LSM <10 kPa
Adj.HR: 0.25, 95% CI [0.10-0.61]

↓ 75%

- La evolución temporal de la rigidez hepática en la esteatosis hepática metabólica (MASLD) ha sido escasamente estudiada en estudios longitudinales.

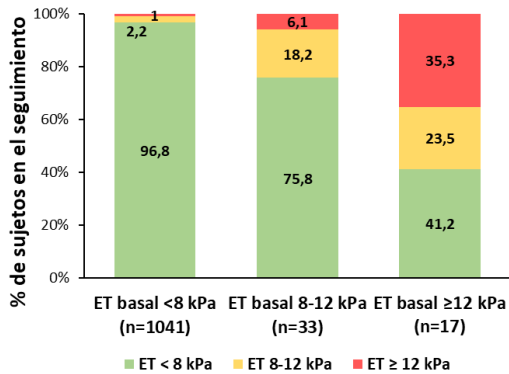
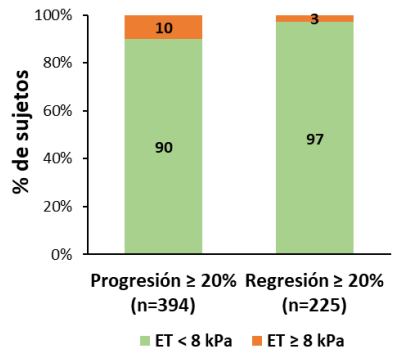
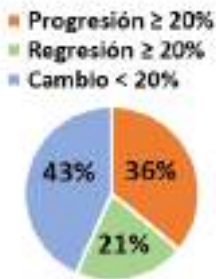
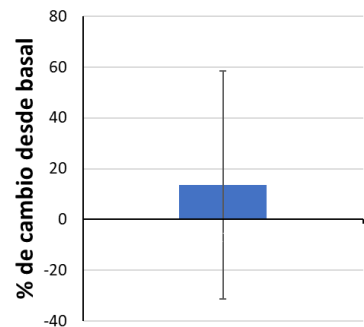
- Objetivos:**

- Evaluar los cambios en la rigidez hepática mediante elastografía de transición (ET) en una amplia cohorte poblacional de sujetos con esteatosis hepática.
- Identificar los factores asociados a la progresión y regresión de la rigidez hepática.

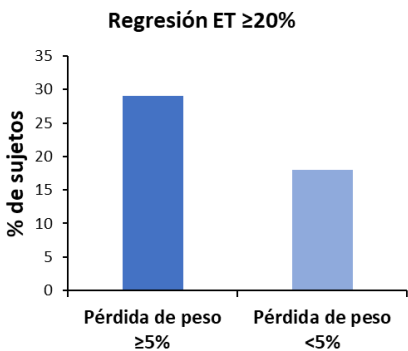


Evolución de la rigidez hepática

Total (n=1091)	
BASAL	
Edad (años)	52,1 ± 9,5
Sexo (hombres)	53,1%
IMC	29,4 ± 4,9
Perímetro abdominal (cm)	97,7 ± 12,9
Obesidad	39,2%
Diabetes mellitus tipo 2	13,5%
Hipertensión arterial	37,1%
Dislipemia	37,9%
ALT (U/l)	28,9 ± 16,6
AST (U/l)	25,4 ± 10,6
Colesterol total (mg/dL)	201,1 ± 35,2
LDL (mg/dL)	112,4 ± 31,5
HDL (mg/dL)	53,9 ± 14,4
Triglicéridos (mg/dL)	186,4 ± 113,1
Plaquetas (x 10 ³ /uL)	233,9 ± 57,8
CAP (dB/m)	303,8 ± 42,6
ET (kPa)	5,0 ± 2,6
ET ≥ 8 kPa	4,6%
SEGUIMIENTO	
CAP (dB/m)	269,7 ± 53,8
ET (kPa)	5,3 ± 3,0
Regresión ET ≥ 20%	20,6%



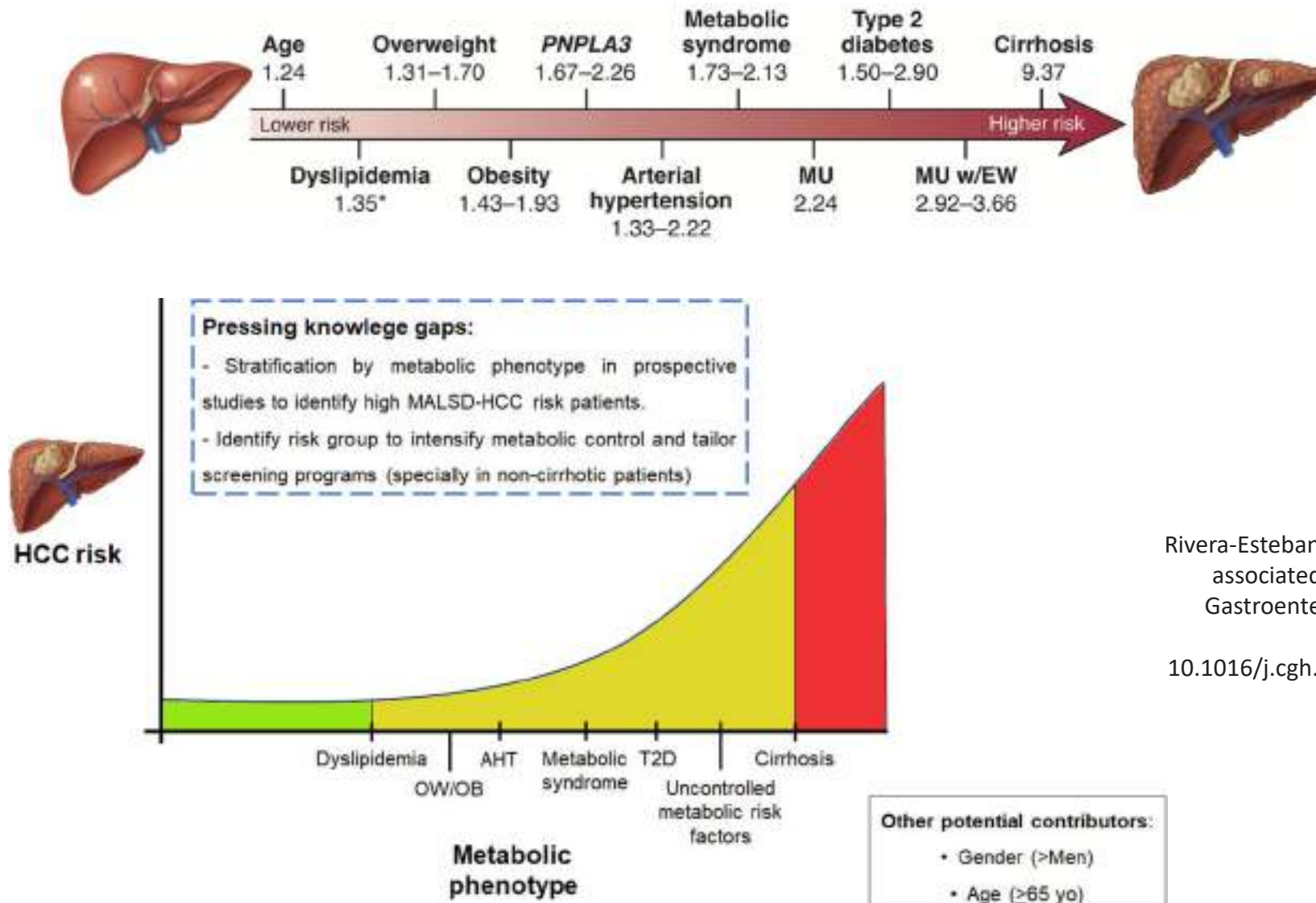
Factores asociados a regresión/progresión



	Análisis univariante		Análisis multivariante	
	OR (IC95%)	p	OR ajustada (IC95%)	p
Edad	0,981 (0,968-0,994)	0,004	0,987 (0,973-1,000)	0,06
Sexo masculino	0,983 (0,767-1,259)	0,89	-	-
DM2 basal	1,336 (0,910-1,961)	0,14	-	-
HTA basal	1,102 (0,785-1,559)	0,57	-	-
Dislipemia basal	1,505 (0,982-2,308)	0,06	-	-
Obesidad basal	1,153 (0,895-1,484)	0,27	-	-
Perímetro abdominal basal	1,007 (0,997-1,017)	0,17	-	-
CAP basal	0,999 (0,996-1,002)	0,53	-	-
Pérdida de peso ≥ 5%	0,582 (0,429-0,791)	0,001	0,708 (0,511-0,980)	0,04
Ganancia de peso ≥ 5%	1,885 (1,430-2,486)	< 0,001	1,584 (1,173-2,139)	0,003

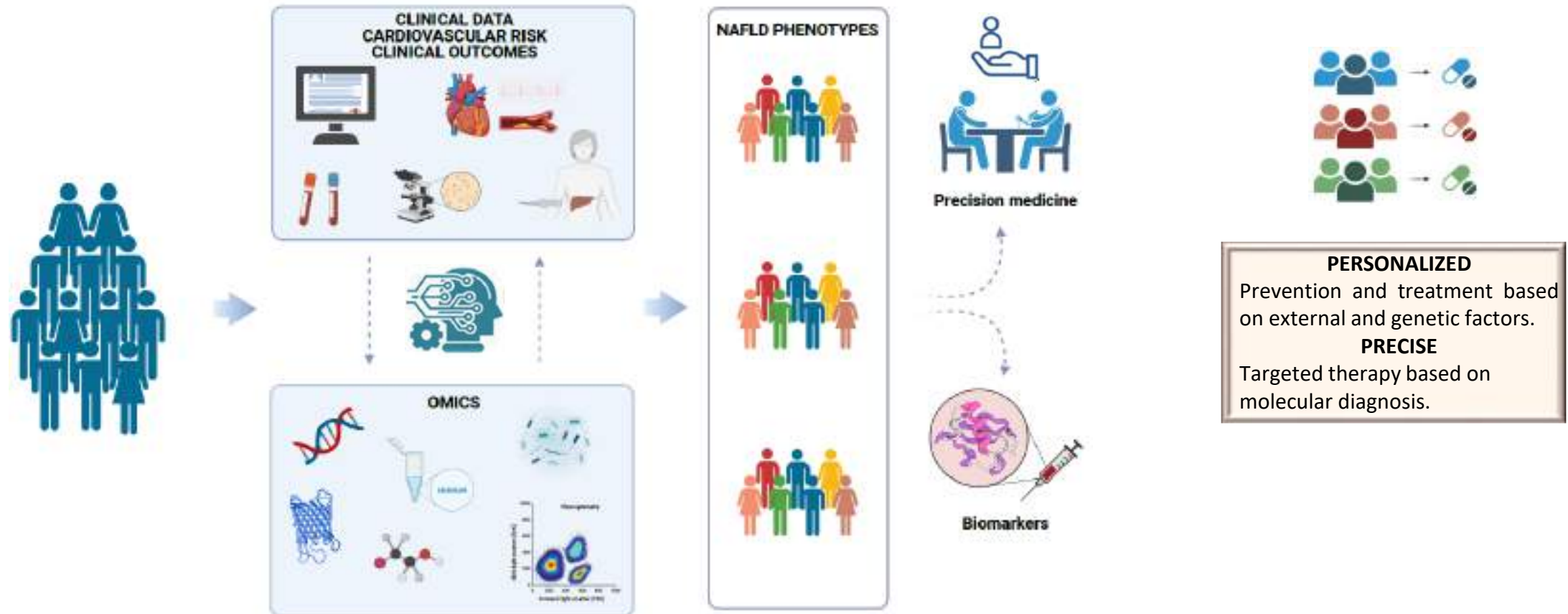
Predicción riesgo hepatocarcinoma.

Biomarcadores. Riesgo hepatocarcinoma.



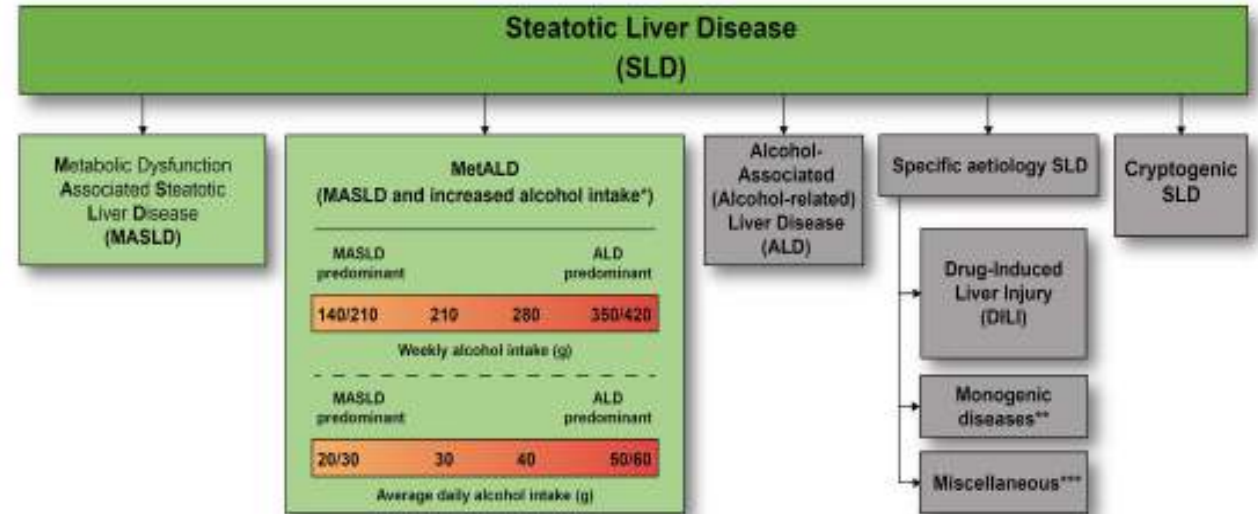
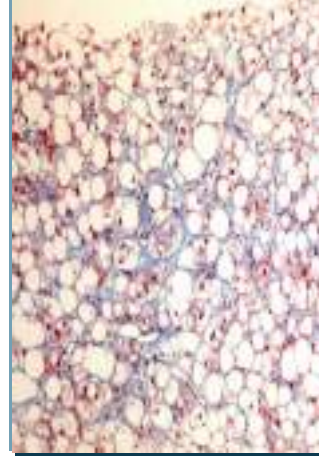
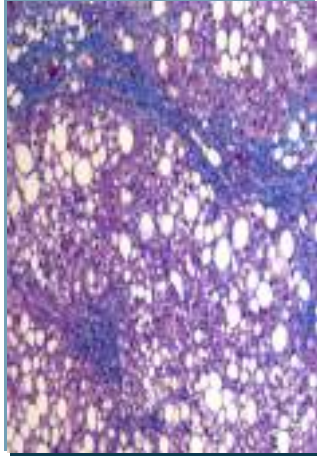
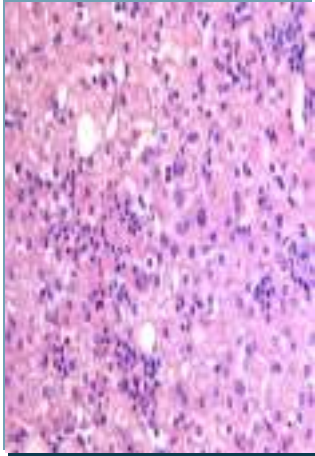
Rivera-Esteban J, et al. Phenotypes of MASLD-associated hepatocellular carcinoma. Clin Gastroenterol Hepatol. 2024 Apr 9:S1542-3565(24)00310-0. doi: 10.1016/j.cgh.2024.03.028. PMID: 38604295.

Fenotipos.



Fenotipo MASLD vs MetALD

MASLD / MetALD. Fenotipo del consumo de alcohol.

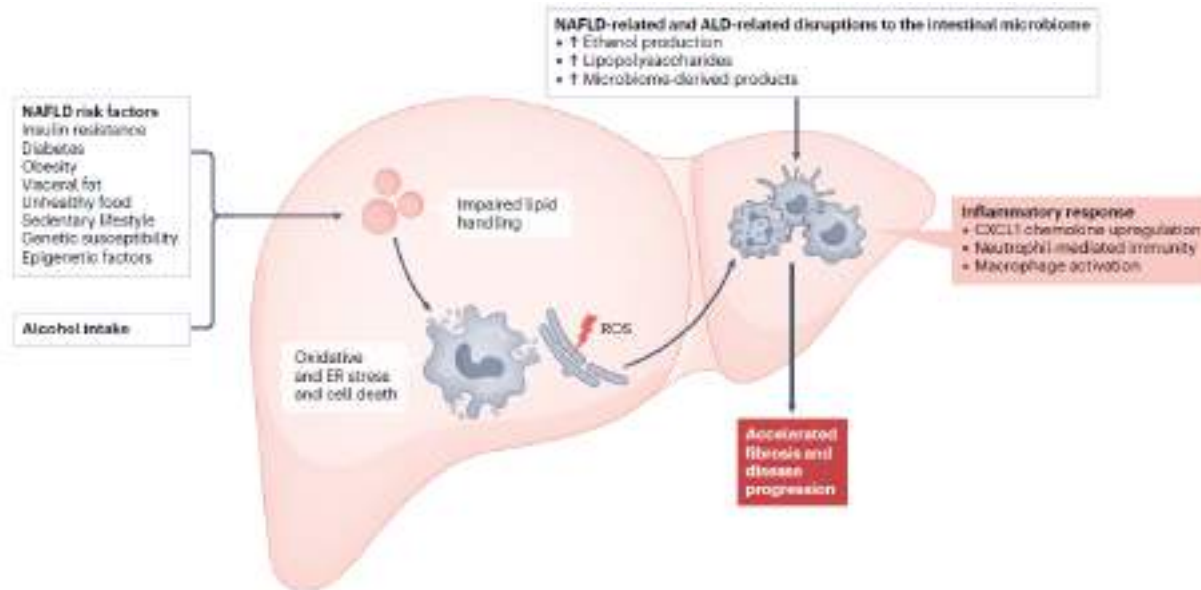


*Weekly intake 140-350g female, 210-420g male (average daily 20-50g female, 30-60g male)

**e.g. Lysosomal Acid Lipase Deficiency (LALD), Wilson disease, hypobetalipoproteinemia, inborn errors of metabolism

***e.g. Hepatitis C virus (HCV), malnutrition, celiac disease





El alcohol y la disfunción metabólica coexisten como factores etiológicos en muchos pacientes con esteatosis hepática.

El alcohol y los factores metabólicos interactúan para exacerbar la progresión de la enfermedad hepática.

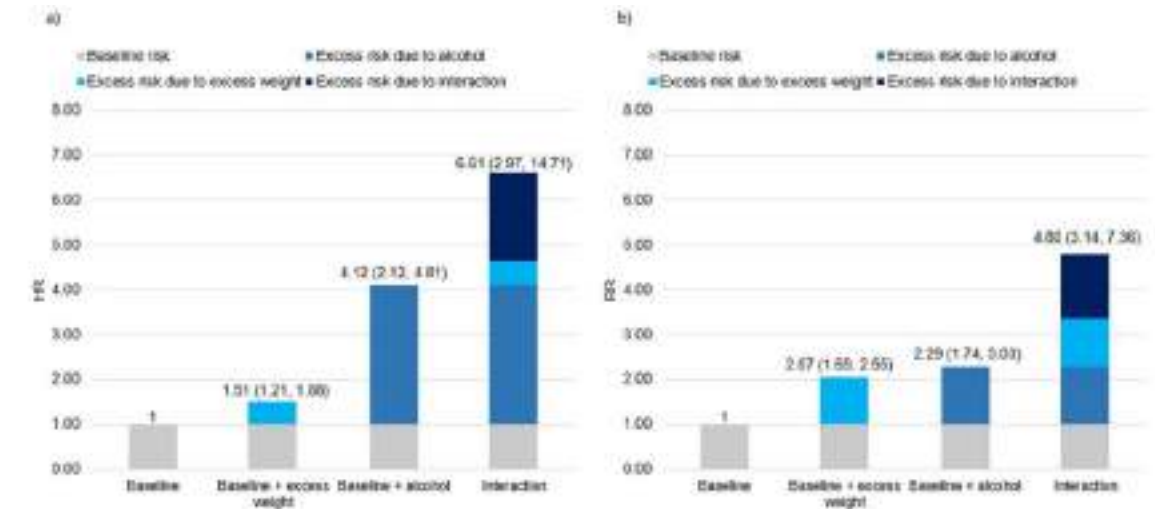


Fig. 4. a-b: Pooled HR (a) and RR (b) for the independent and joint association of drinking alcohol and excess weight and liver disease/death (n = 2,603,939).

El consumo de alcohol aumentó significativamente el riesgo de enfermedad hepática o muerte, al igual que el exceso de peso. El efecto combinado del alcohol y el exceso de peso sobre la enfermedad hepática/muerte fue 1,61 veces mayor que el efecto aditivo de cada exposición (IC del 95 %: 1,34; 1,93).

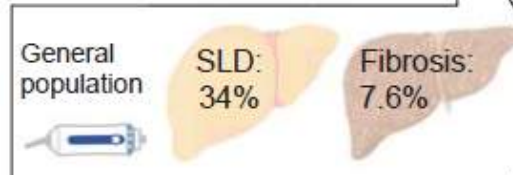
El alcohol y la obesidad tienen un EFECTO SINÉRGICO

- El consumo bajo y el moderado de alcohol se asociaron de forma independiente con fibrosis significativa en pacientes con MASLD.

- Consumo bajo (OR=1,53 IC 95% 0,83-2,83)
- Consumo moderado (OR=2,71 IC 95% 1,77-4,13)

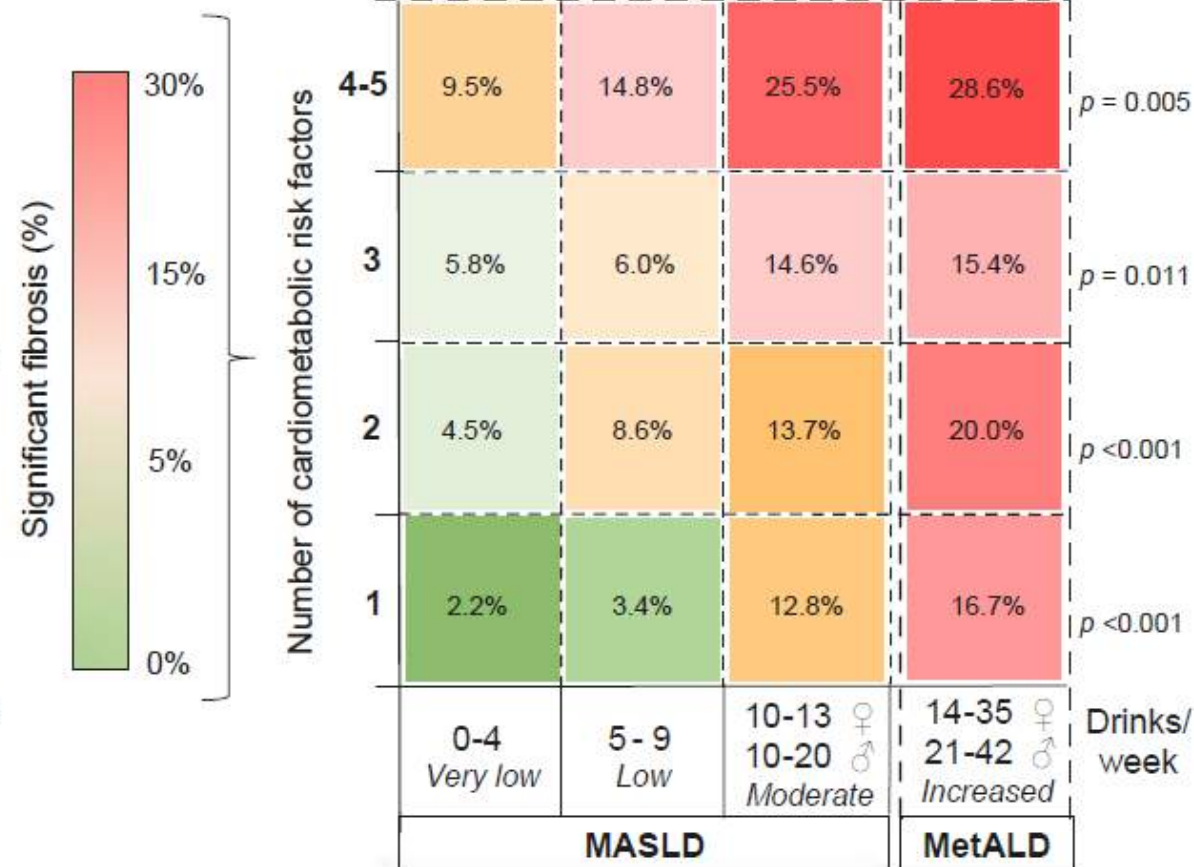
- Aumento de la prevalencia de fibrosis significativa proporcional a la cantidad de OH y número de factores cardiometabólicos.

Derivation sample: Spain, ETHON cohort (n = 6,826)



Validation sample: U.S., NHANES cohort (n = 4,427)

- Steatotic liver disease was defined as CAP ≥ 275 dB/m
- Significant fibrosis was defined as LSM ≥ 8.0 kPa
- Results refers to the derivation cohort
- Analysis was performed with Chi² test



Fenotipo autoinmune

Fenotipo autoinmune

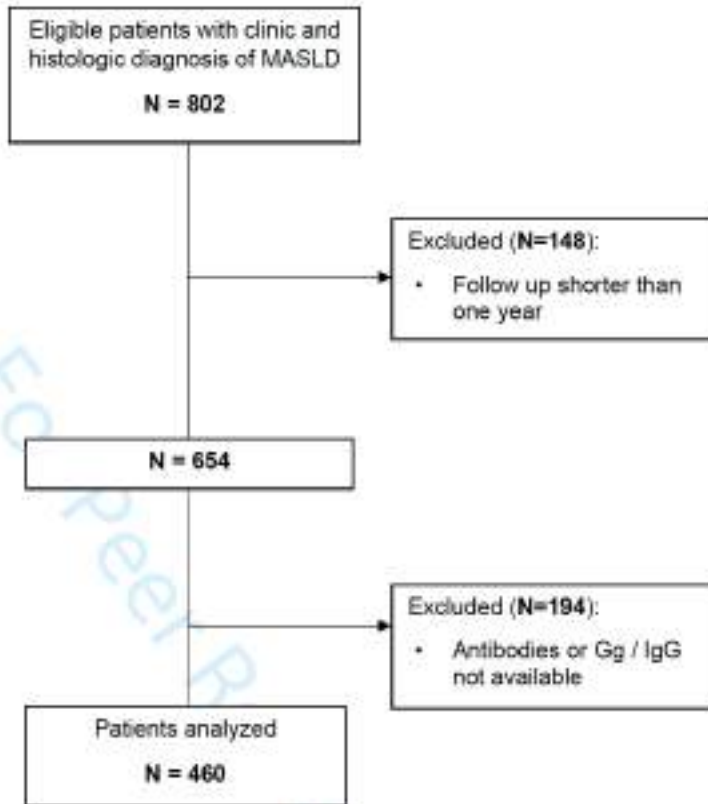


Figure 2A. Progression to cACLD and both positive antibodies

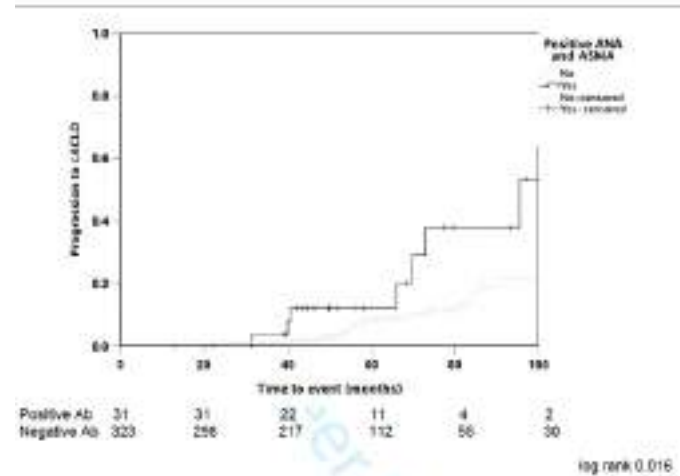


Figure 2B. Liver decompensation and both positive antibodies

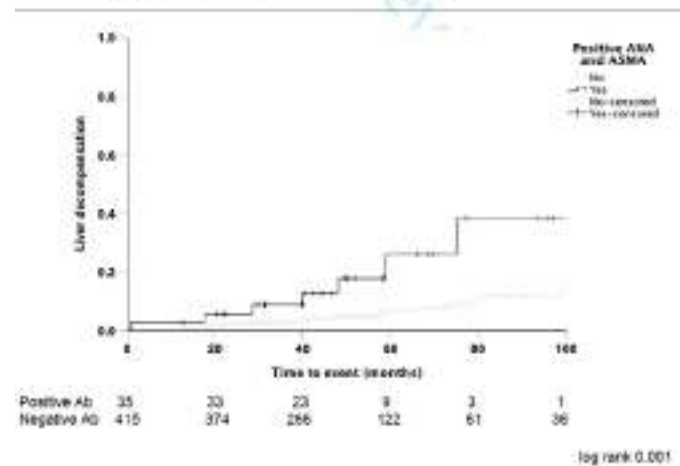
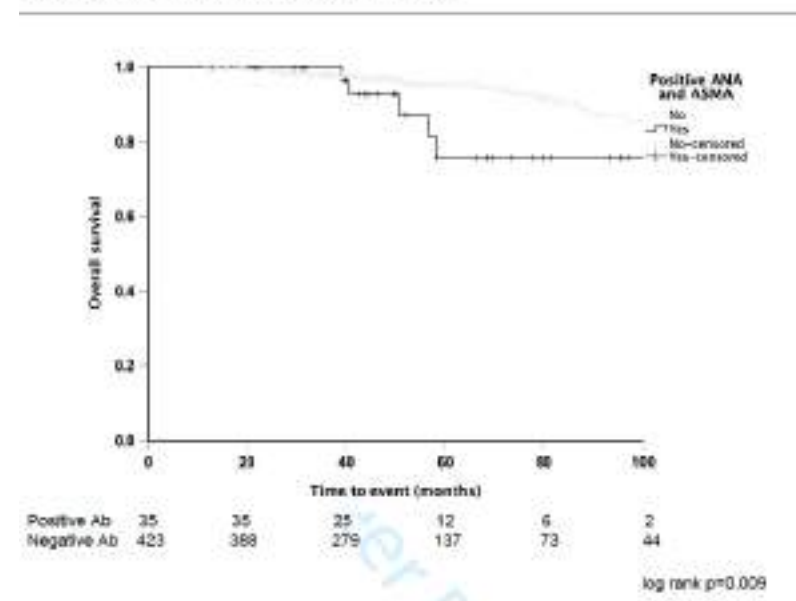
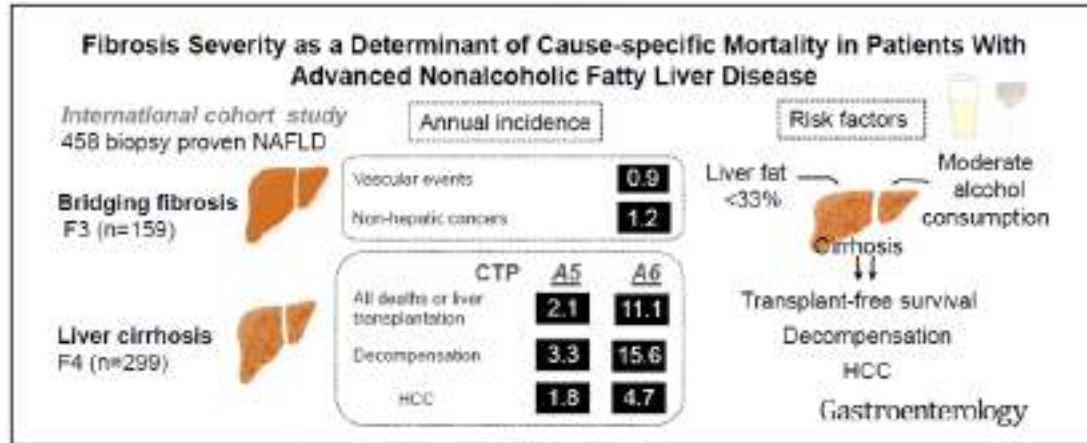


Figure 2C. Survival and both positive antibodies

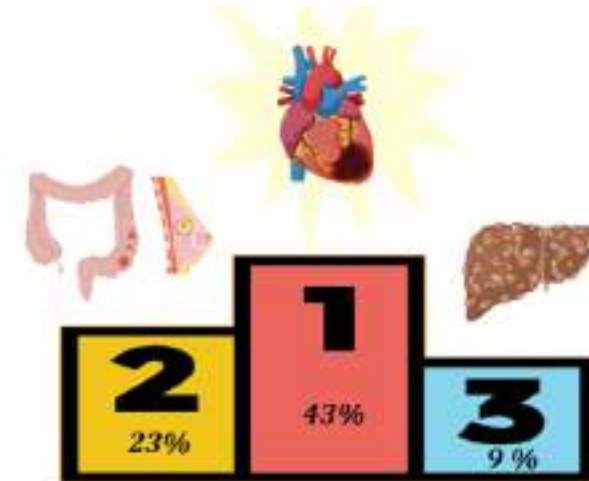


The presence of autoantibodies in patients with metabolic dysfunction-associated steatotic liver disease increases the risk of liver disease progression. 2025. Submitted.

Fenotipo Vascular



- Los pacientes con una cirrosis establecida desarrollan predominantemente eventos hepáticos y su mortalidad es de causa hepática en su mayor parte.
- Los pacientes con un grado de fibrosis F3 desarrollan predominantemente eventos cardiovasculares y cánceres extrahepáticos.



MORTALIDAD

- Mortalidad cardiovascular doble que la población general.
- Incidencia mayor de cardiopatía isquémica, arritmias, valvulopatías, disfunción diastólica.

Aterosclerosis subclínica



- x1,4** en calcificación arteria coronaria
- x1,6** en rigidez arterial
- x1,7** en espesor íntima-media carotídea
- x3,7** en disfunción endotelial

Eventos cardiovasculares



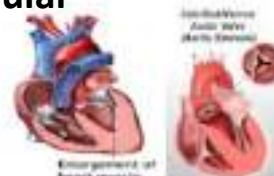
- x1,6** en ECV fatales o no fatales
- x2,6** en ECV fatales o no fatales en NAFLD avanzado

Trastornos del ritmo



- x1,6** en la incidencia de fibrilación auricular
- x5** en defectos de la conducción cardíaca

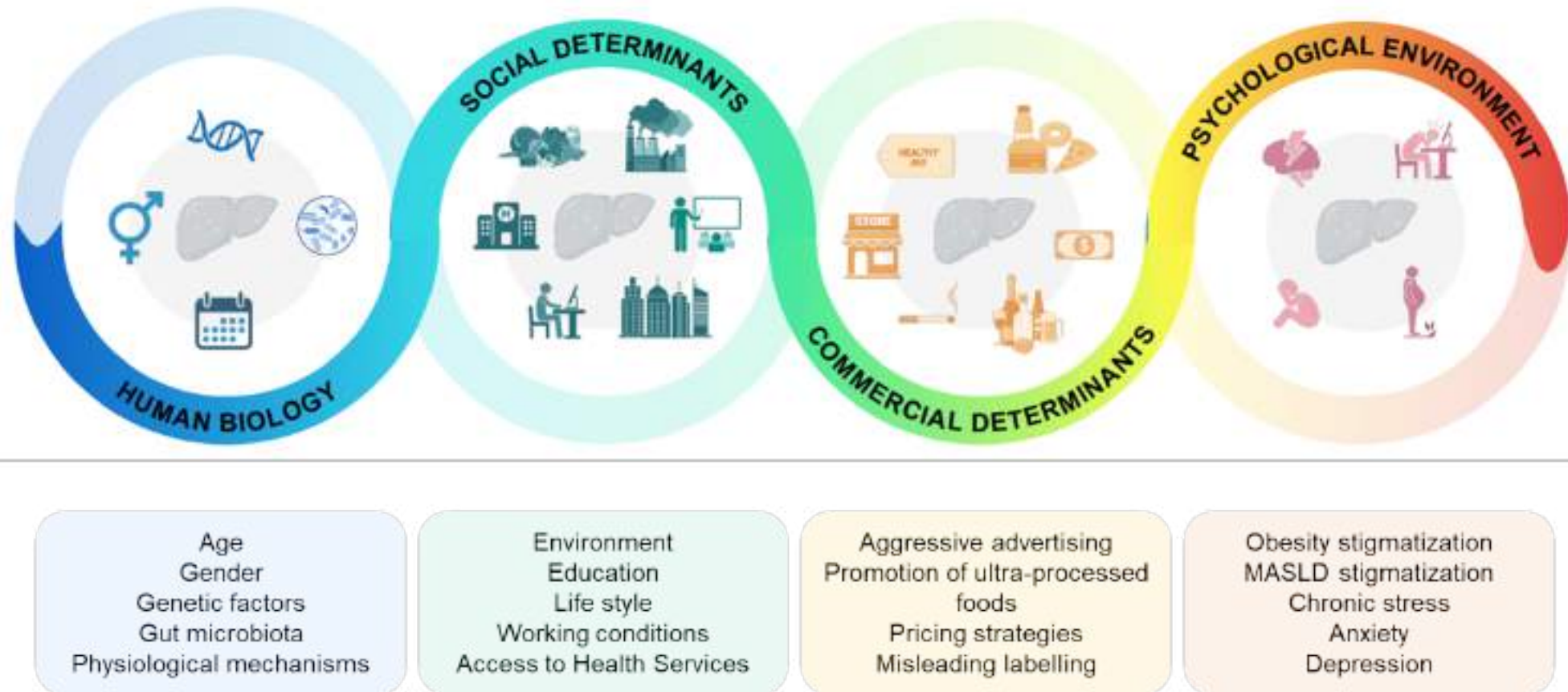
Disfunción ventricular y valvular



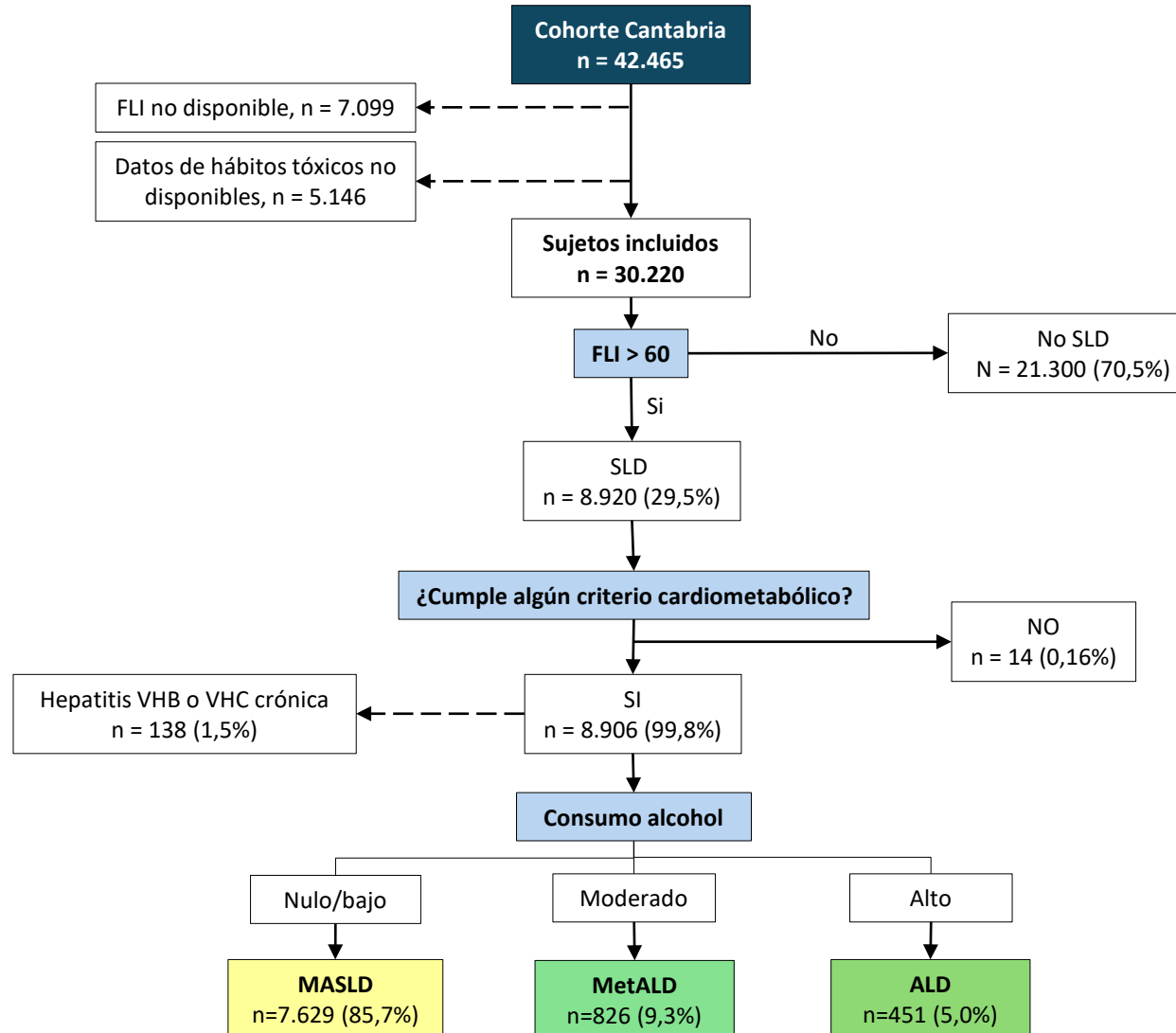
- x2** en disfunción diastólica
- x2** en esclerosis de la válvula aórtica

Fenotipo social

Fenotipo social.

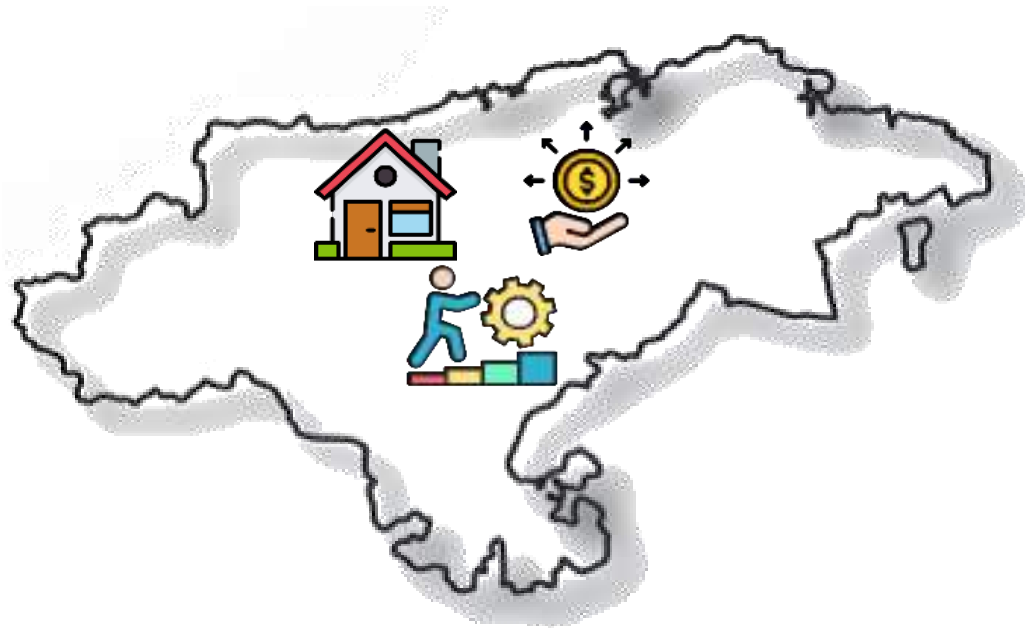


Fenotipo social.



Paula Iruzubieta, David Sordo, Marta Alonso-Peña, Carolina Jiménez-González, María Teresa Arias-Loste, Sara Arias, Ana Álvarez-Cancelo, Lorena Cayon, Javier Crespo. Impacto de los determinantes sociales de la salud y calidad de vida en pacientes MASLD de población general. AEEH 2025.

Fenotipo social.



	Total (n=30.220)
Renta baja	4.657 (18,6%)
Nivel educativo bajo	7.599 (25,5%)
Medio rural	11.488 (38,0%)
Desempleo	3.449 (11,6%)
Seguro privado	2.590 (19,7%)
Discapacidad física o mental	1.742 (13,3%)
Factor vulnerabilidad	1.419 (12,6%)

Fenotipo social.

	MASLD (n=7.638)	No SLD (n=21.300)	p	MASLD FIB-4 bajo-int (n=7.453)	MASLD FIB-4 alto (n=143)	p
Renta baja	1.387 (22,1%)	3.059 (17,3%)	<0,001	1.351 (22,1%)	26 (22,0%)	0,985
Nivel educativo bajo	2.476 (33,0%)	4.709 (22,4%)	<0,001	2.404 (32,9%)	59 (42,4%)	0,017
Medio rural	3.081 (40,3%)	7.906 (37,1%)	<0,001	3.011 (40,4%)	49 (34,3%)	0,139
Desempleo	1.162 (15,5%)	2.120 (10,1%)	<0,001	1.126 (15,4%)	30 (21,9%)	0,037
Seguro privado	525 (17,8%)	1.964 (20,3%)	0,002	512 (17,7%)	7 (14,3%)	0,53
Discapacidad física o mental	583 (19,8%)	1.082 (11,2%)	<0,001	556 (19,3%)	24 (49,0%)	<0,001
Factor vulnerabilidad	470 (19,0%)	883 (10,6%)	<0,001	455 (18,8%)	10 (23,3%)	0,463

Ojo con los biomarcadores

Out of the 11440 individuals with reliable TE from the ETHON cohort, 94.39% had a LSM < 8 kPa and **5.61% had a LSM ≥ 8 kPa**.

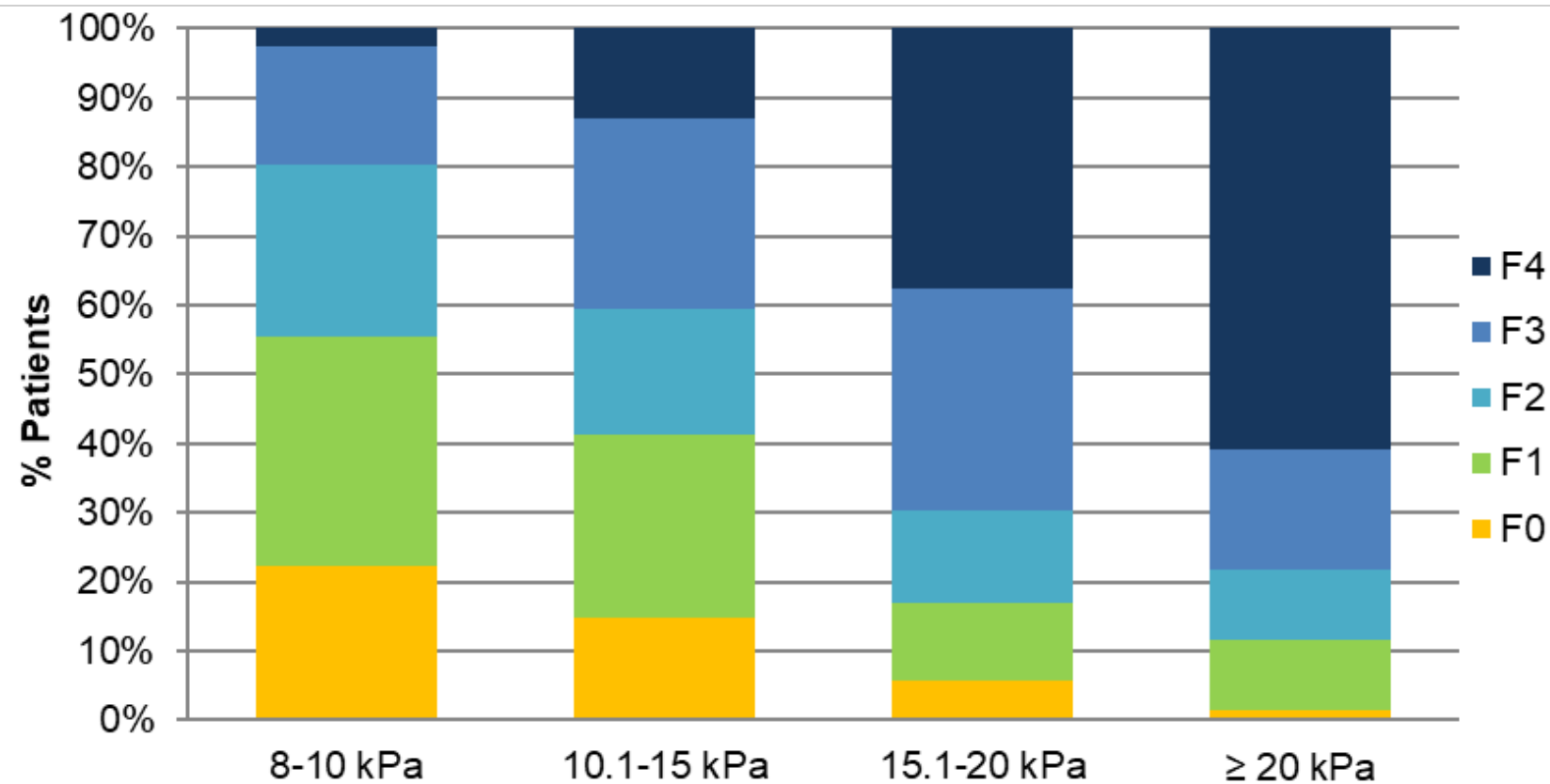
The sub-cohort of patients with LSM ≥ 8 kPa were selected for further analyses.

LSM	PATIENTS, n (%)	LSM ≥ 8 kPa (95%CI)
< 8 kPa	10797 (94.39)	5.61 (2.53-11.97)
8-10 kPa	344 (3.00)	
10-15 kPa	185 (1.62)	
15-20 kPa	36 (0.31)	
≥ 20 kPa	78 (0.68)	
TOTAL	11440 (100)	

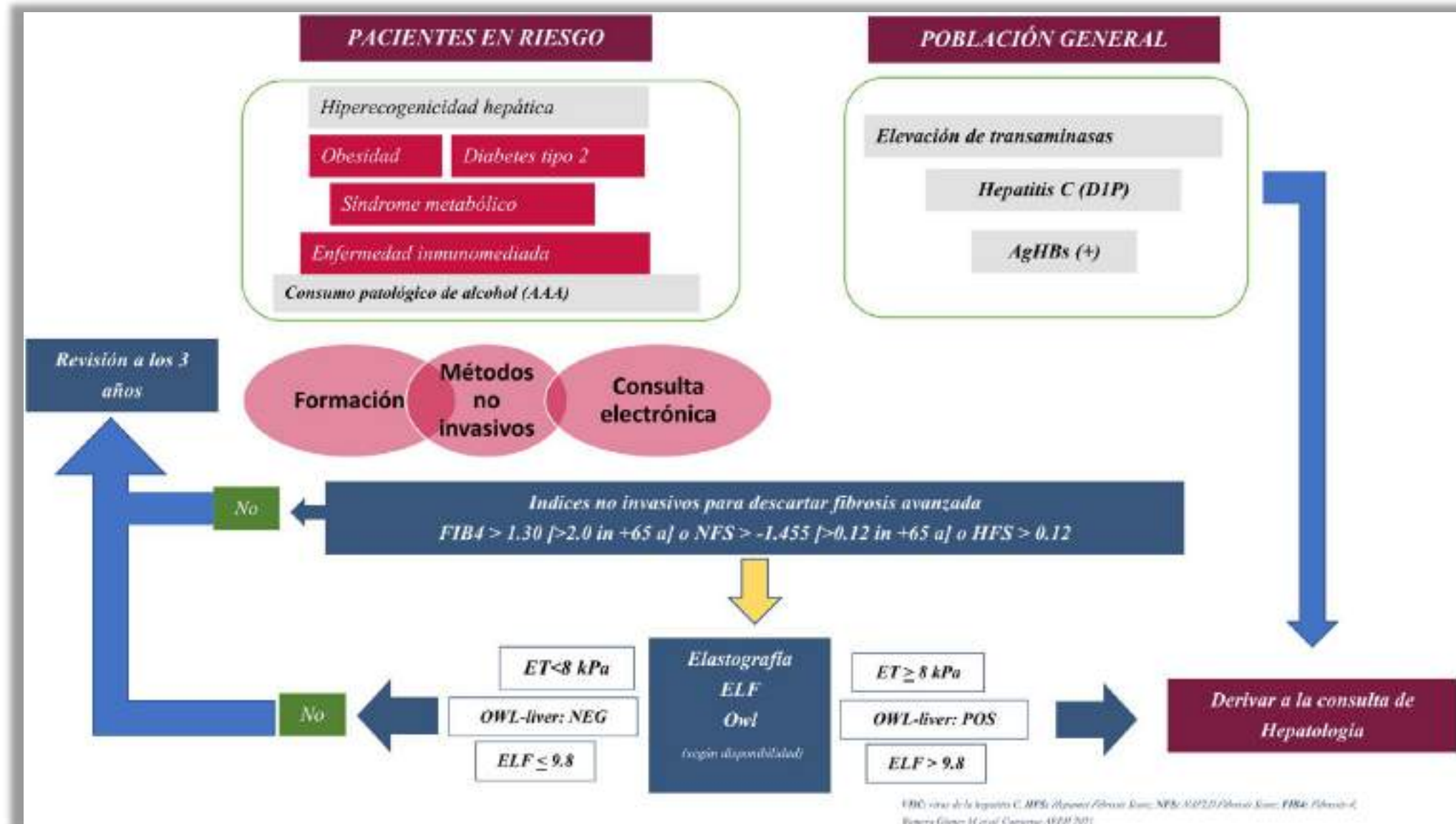


From the complete ETHON dataset of 12246 individuals, 806 (6.6%) individuals were excluded due to non-valid or indeterminate LSM.

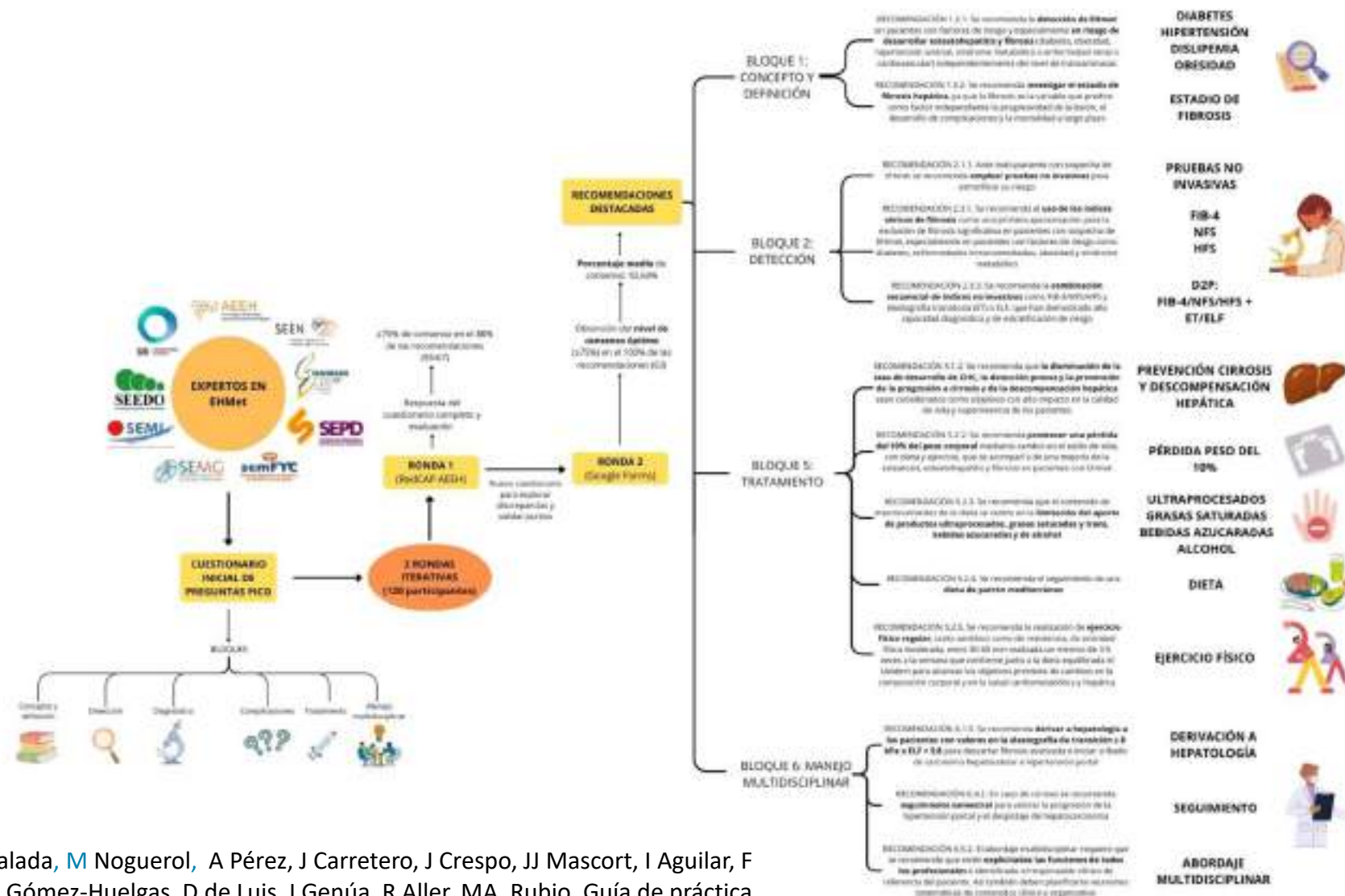
The proportion of patients with advanced fibrosis increased at each LSM interval, but even at the highest interval (LSM ≥ 20 kPa), there was a substantial proportion of patients without cirrhosis (39%).



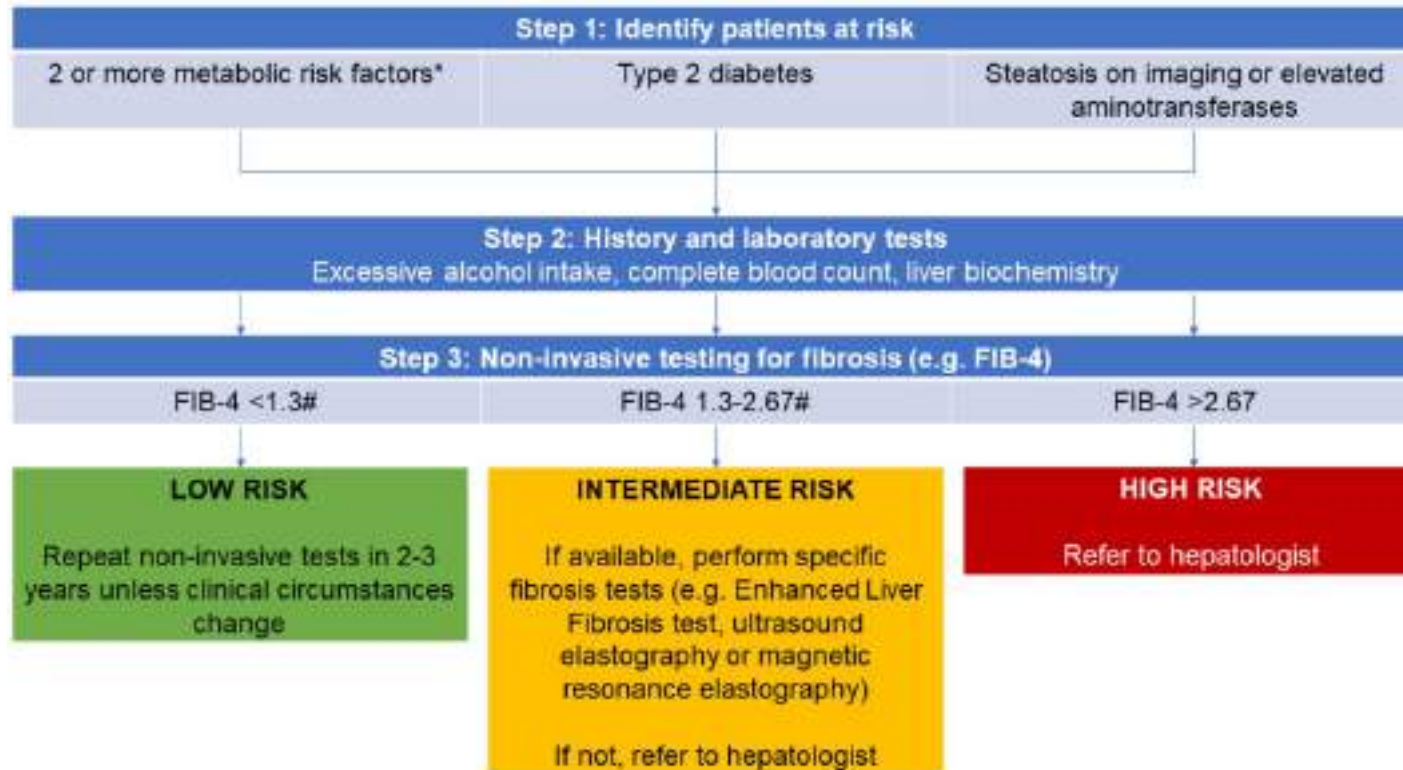
MASLD / EHmet. El mejor algoritmo.



MASLD / EHmet. El mejor algoritmo.

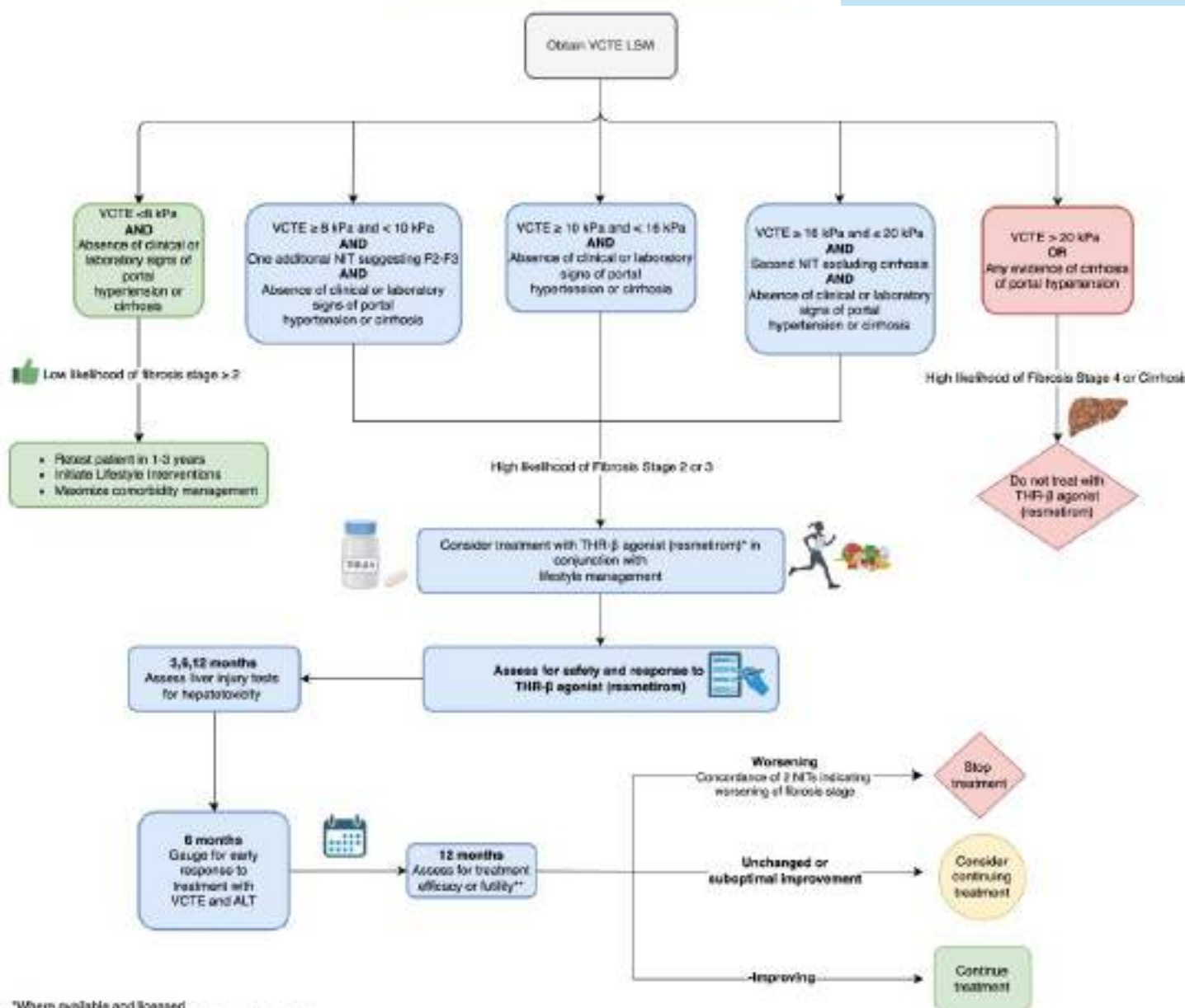


M Romero-Gómez, J Escalada, M Noguerol, A Pérez, J Carretero, J Crespo, JJ Mascort, I Aguilar, F Tinahones, P Cañones, R Gómez-Huelgas, D de Luis, I Genúa, R Aller, MA. Rubio. Guía de práctica clínica multidisciplinar de manejo de la esteatosis hepática metabólica Gastroenterología y Hepatología 2025 502442



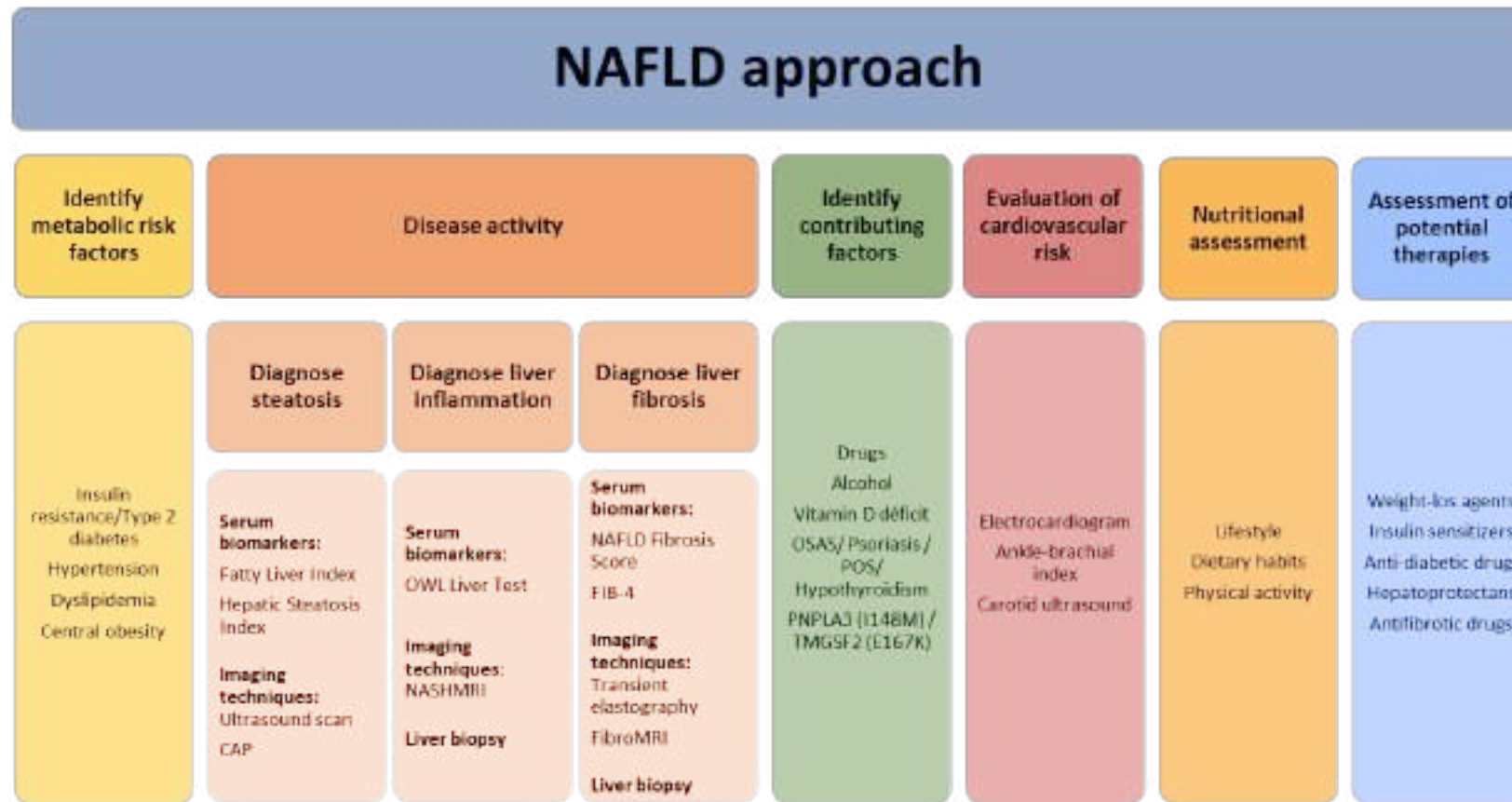
Why the Fibrosis-4 index (FIB-4)?

- o Most validated test for identifying advanced fibrosis
- o High specificity and NPV for ruling out advanced fibrosis
- o Easy to use: age, ALT, AST, platelets
- o Less influence from metabolic comorbidities



Younossi ZM, et al. Global Consensus Recommendations for Metabolic Dysfunction-Associated Steatotic Liver Disease and Steatohepatitis. Gastroenterology 2025. In press. DOI: <https://doi.org/10.1053/j.gastro.2025.02.044>

Mensajes para llevar a casa



El mejor algoritmo es el que se puede hacer; y si resulta barato, mejor.

