Has The Fog Cleared Yet!

Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD)

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November 9th 2024

Virginia Mason Franciscan Health

Disclosure

I have no actual or potential conflict of interest in relation to this presentation.

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OBJECTIVES

01 Discuss new nomenclature MASLD

02 Identify risk factors of MASLD

03 Explore the use of noninvasive tests and biomarkers used in diagnosis and monitoring for progression of MASLD/MASH

04 Review how to identify patients at risk of MASH and advanced liver fibrosis

05 Review evidence based guideline recommendations for treatment of MASLD, including lifestyle modification, medications, surgery

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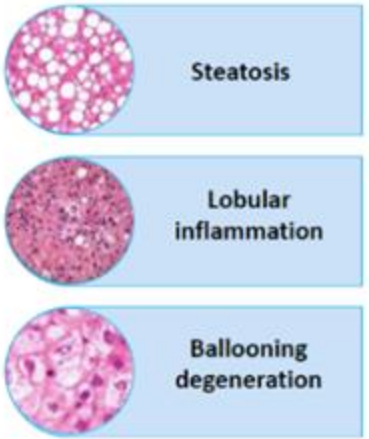
What is Hepatic Steatosis

Hepatic Steatosis: Accumulation of fat in hepatocytes. Maybe evidenced on imaging, or histology (biopsy)

Steatohepatitis : Hepatic steatosis + lobular/portal inflammation + hepatocyte degeneration with or without fibrosis



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C.J 48 years, I initially met him 2019

Presented to his primary care physician with right upper quadrant discomfort.

PMH: Hypertension , Hyperlipidemia,

Medications: Losartan

Social History: Drinks “socially”

Exam: BMI 43 , BP 148/90, central adiposity

PCP concerned about gallstones and obtained a ultrasound which reported “echogenic liver”

WBC 5.2, Hct 42%, Platelet 205

LFT: ALT 72, AST 73, Alk Phos 85, TB 0.5

What is the likely cause of abnormal LFT

1. Chronic HCV infection
2. MASLD
3. Alcohol use disorder
4. Something else?

What is the next step

1. Repeat LFT in 4 weeks
2. Lifestyle advice - weight loss, stop alcohol
3. Refer to hepatology
4. Calculate FIB-4
5. Proceed with liver biopsy

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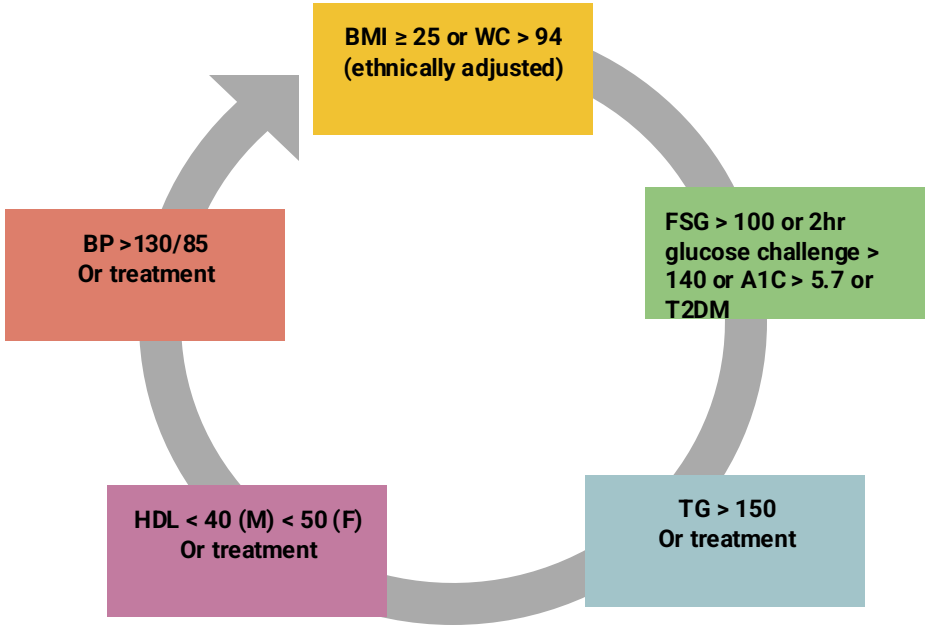
Non-alcoholic fatty liver disease (NAFLD) is now Metabolic Dysfunction - Associated Steatotic Liver Disease (MASLD, ma-ZULD)

NASH is replaced by MASH

Steatosis or “fat” in the liver



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MASLD - removes stigmatizing language

- ⊕ Alcoholic terminology removed
- ⊕ Metabolic criteria clearly defined
- ⊕ New category-MetALD added - combination of alcohol and metabolic syndrome
- ⊖ Long name; when talking to patients we still tend to use term “fatty liver”

MASLD is primarily a metabolic disease
MASLD is the liver’s manifestation of metabolic syndrome (MetS)

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Abnormal LFTs

Mildly elevated ALT/AST is common!

- Degree of ALT/AST elevation does not correlate with severity of disease
- However if AST > ALT, may indicated advanced liver fibrosis

BALLETS STUDY (BMJ 2013)

A prospective observational study.

Patients (n=1290) with an abnormal LFT (but no previously diagnosed liver disease) followed for 2 years

Only 2.5% with abnormal LFTs had a specific diagnosis
40% had “fatty liver” on US
Repeating LFT panel in 1 month is unnecessary!
ALT and ALP most associated with liver disease
GGT not helpful

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Abnormal LFT In MASLD

- ALT and AST < 5x normal (ALT >AST)
- Can present with normal ALT

Retrospective study, 222 patients with hepatic steatosis, all underwent liver biopsy

- *37.5 % with normal ALT had MASH or advanced fibrosis,*

  whereas 53% with elevated ALT had no MASH or advanced fibrosis

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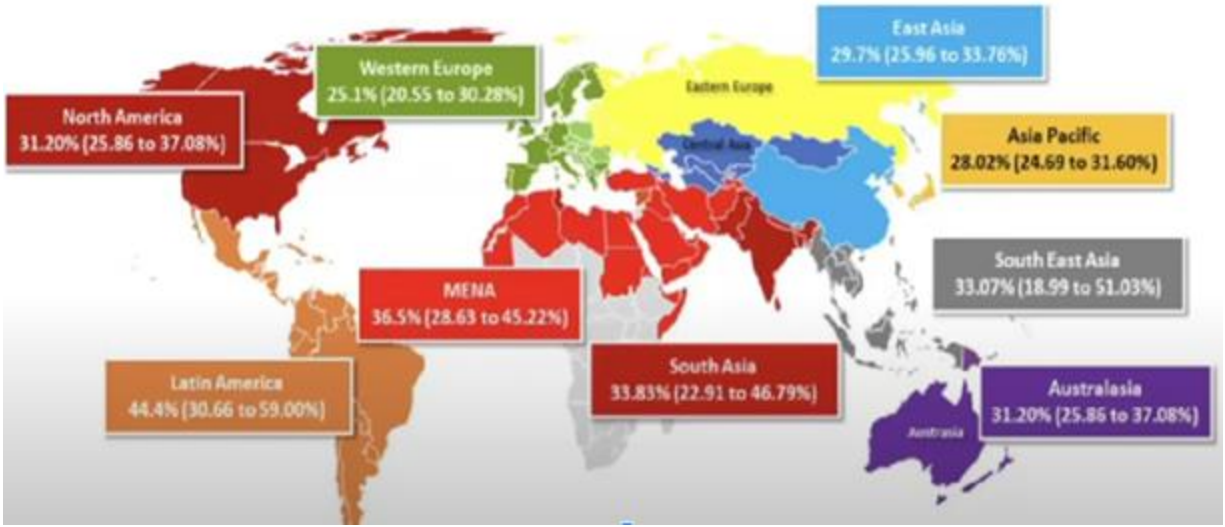
World J Gastroenterol. 2015 Oct 21;21(39):11077–11087

Epidemiology: BURDEN Of MASLD

Prevalence of MASLD 30%



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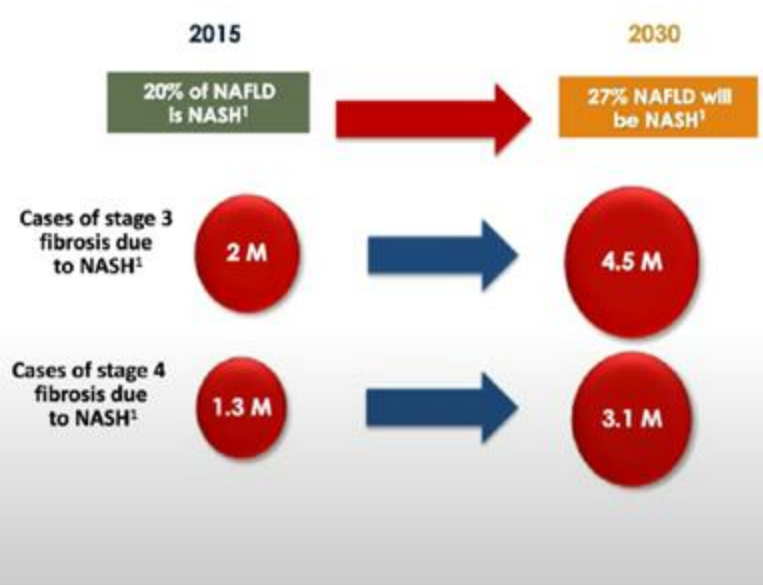
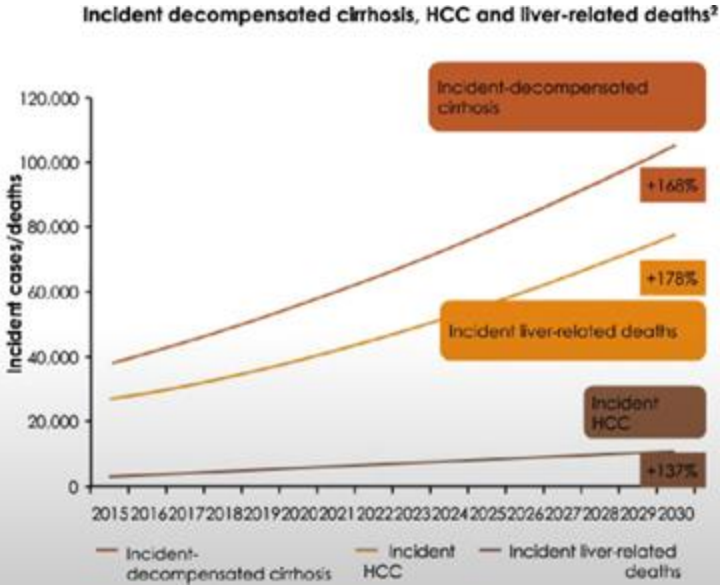
Younossi. Hepatology. 2016;64:73.

Future Burden Of MASLD in US





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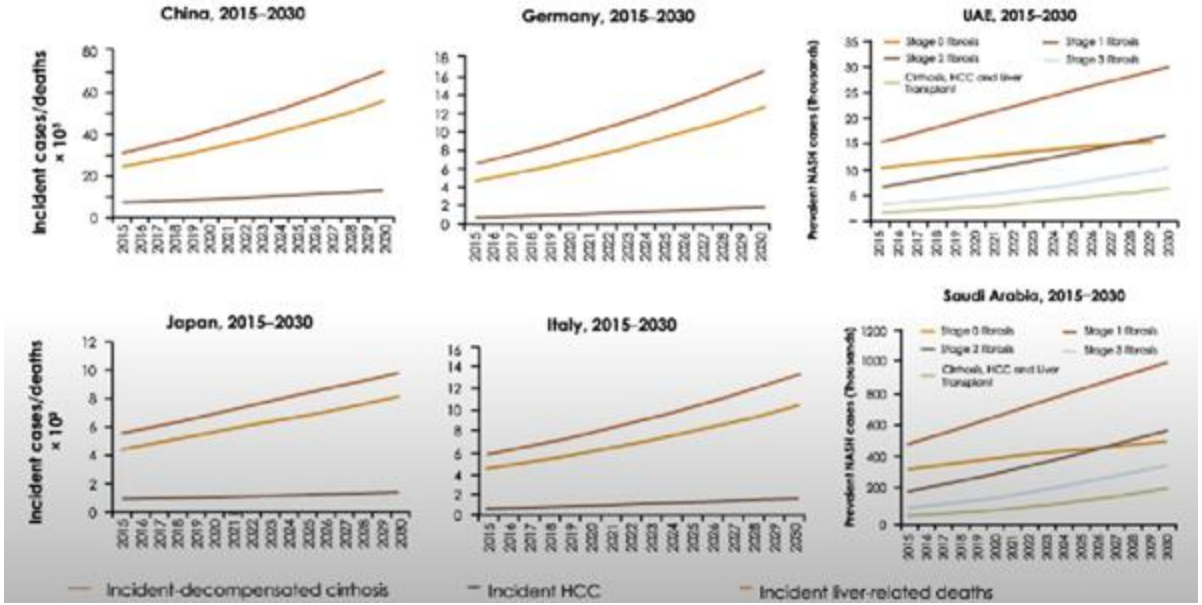
Hepatology. 2017 Dec 1;67(1):123–133

Future Burden On MASLD in Europe, Asia, Middle East



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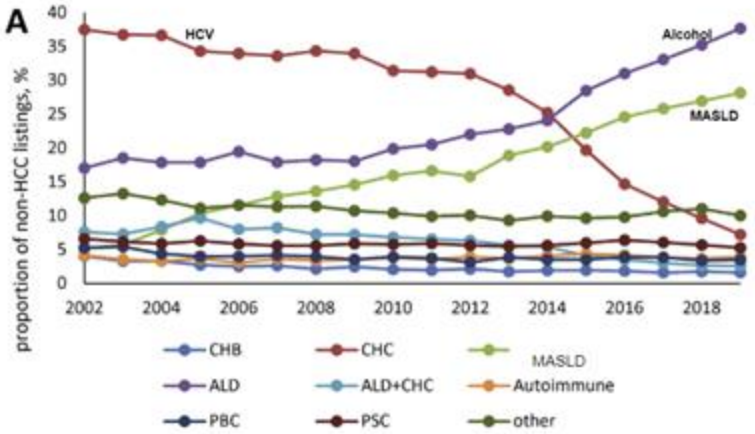
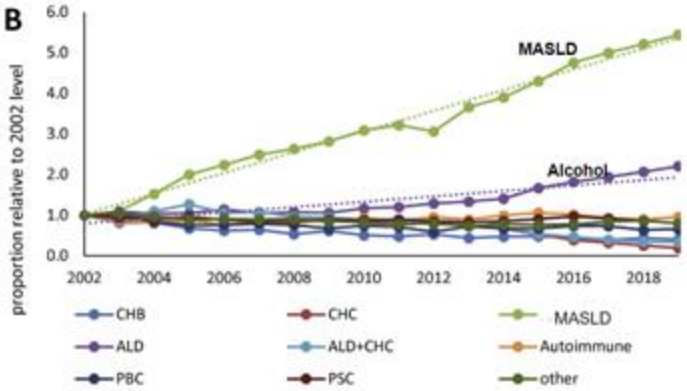
MASLD - most rapidly growing indication for Liver transplant





MASLD is the leading cause of liver transplantation in women.

However, women are more likely to die whilst on the waiting list for liver transplantation

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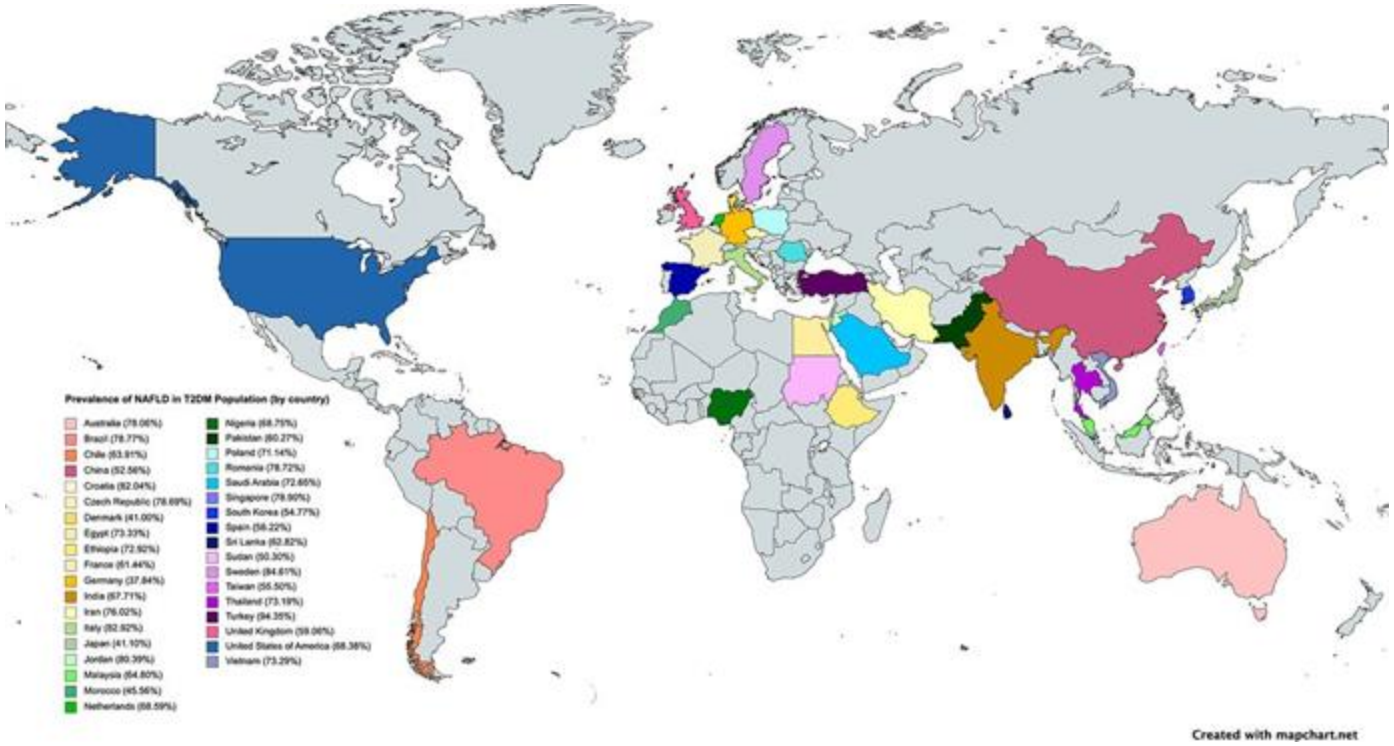
Younossi, Zobair M. et al. Clinical Gastroenterology and Hepatology, Volume 19, Issue 3, 580 - 589

MASLD - extremely high in Type 2 diabetics



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Forlano R et al Liver Int. 2024 Jan;44(1):61-71

Recommended guidelines

AASLD[1]	EASL/EASD/EASO[2]	ADA[3]
In T2D, **suspect MASLD and MASH** and determine person's risk of advanced fibrosis	MASH and advanced fibrosis **screening recommended** in persons at high risk (age >50 yr, T2D, metabolic syndrome)	MASH and fibrosis **screening recommended** in persons with T2D or prediabetes, particularly if obesity or cardiometabolic disease/risk factors are present
Increasing number of metabolic diseases = **increasing risk of progressive liver disease**		

AASLD, EASL and ADA - recommend patients with T2DM warrant work up for MASLD/MASH

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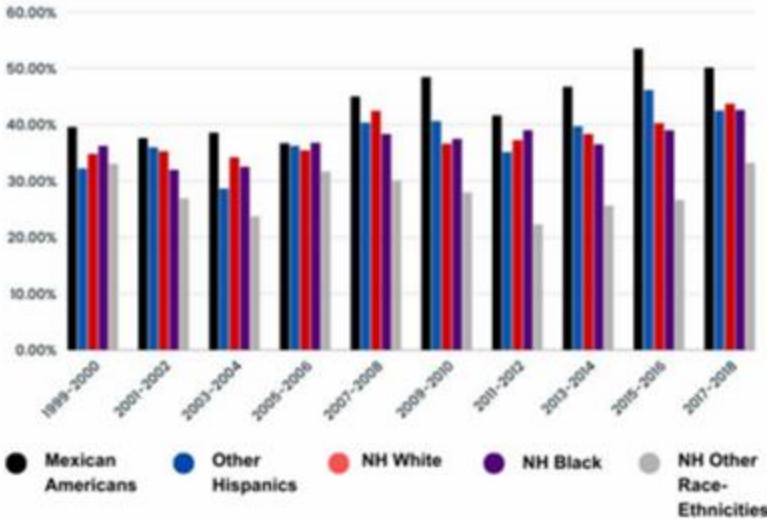
Slide credit: clinicaleducationalliance.com

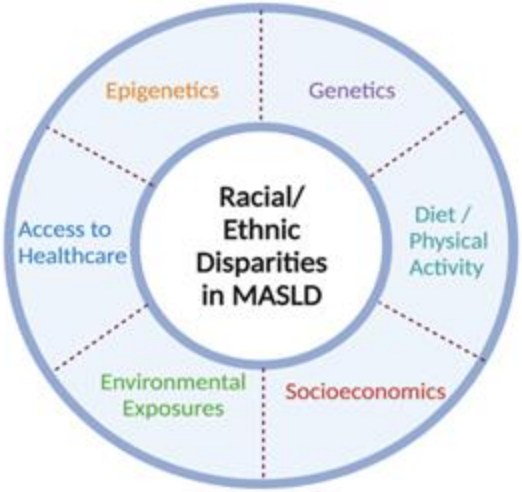
cea clinical education alliance

1. Chalasani. Hepatology. 2018;67:328. 2. EASL/EASD/EASO. J Hepatol. 2016;64:1388. 3. ADA. Diabetes Care. 2024;47:S52.

Ethnic disparities



- 40166 individuals included
- 37.63% had MASLD
- Increase prevalence in most-race-ethnicities over time
- Significant increase among Mexican Americans

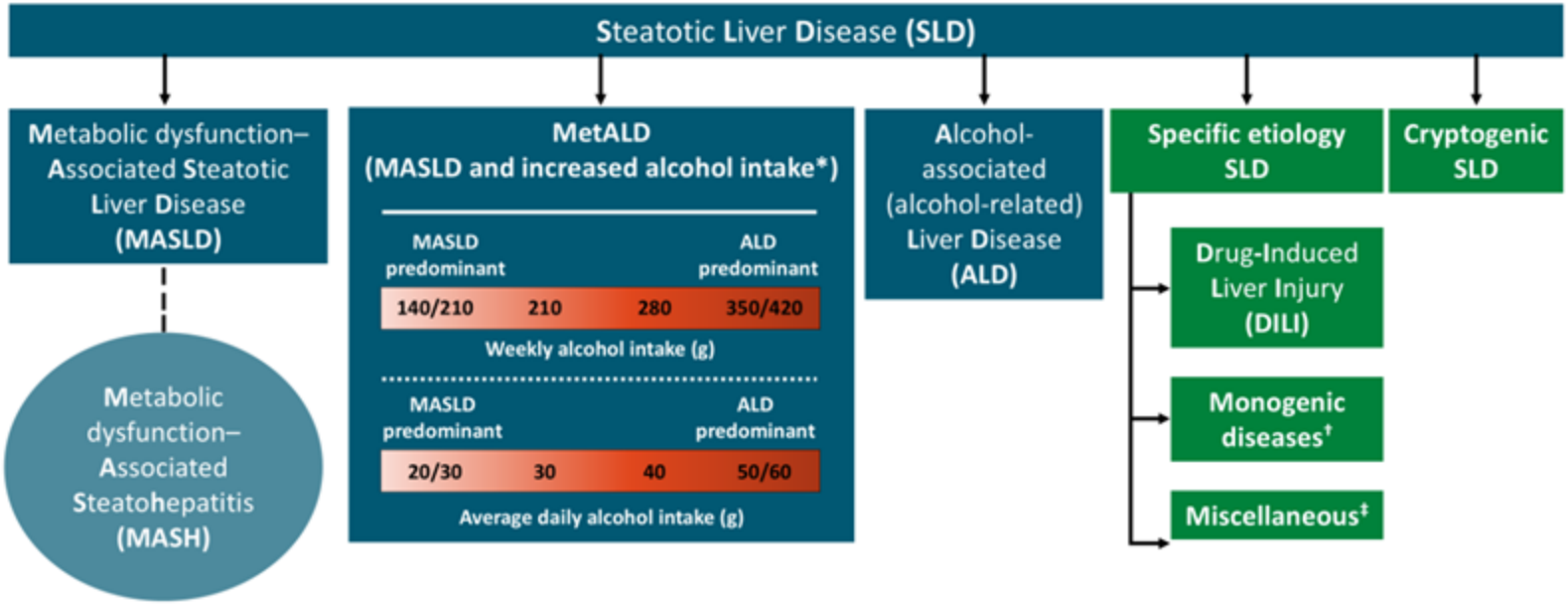


- Genetic factors: PNPLA3, TM6SF2, MBOAT7 HSD17B13

Clarissa Elysia Fu et al. June 2024 Digestive Diseases and Sciences

Gulati R et al. Metab Target Organ Damage 2024;4:9

Steatotic Liver Disease



*Weekly intake 140-350 g female, 210-420 g male (average daily: 20-50 g female, 30-60 g male).
†eg, lysosomal acid lipase deficiency, Wilson disease, hypobetalipoproteinemia, inborn errors of metabolism.
‡eg, hepatitis C virus, malnutrition, celiac disease.

Rinella. Hepatology, 2023;78:1966.

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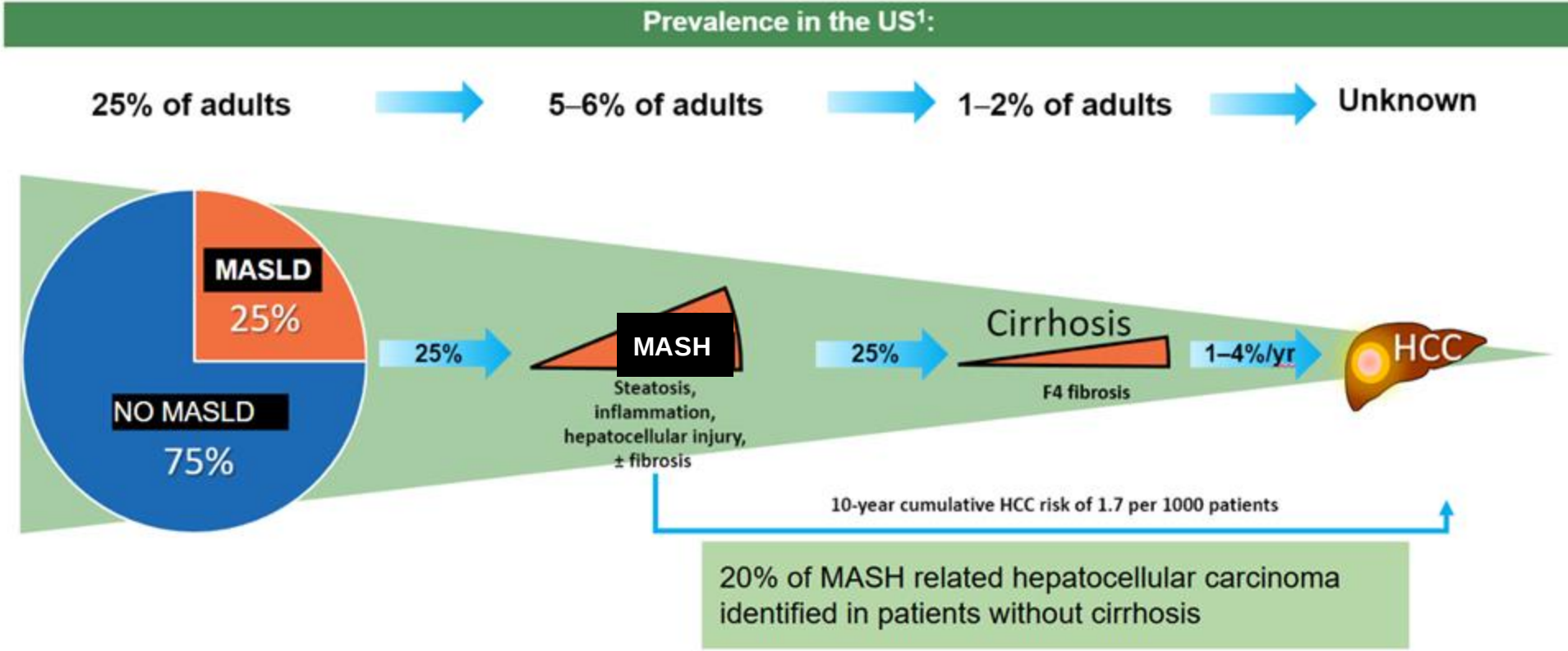
Stages Of MASLD



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1. Younossi ZM et al. Hepatology 2016, 2. Diehl AM et al N Engl J Med 2017, 3. Kanwal F et al Gastroenterology 2018

My Patient CJ

C.J first seen by me 2019 , was 48years old at that time
Presented to his primary care physician with right upper quadrant discomfort.
PMH: Hypertension , Hyperlipidemia,
Medications: Losartan
Social History: Drinks “socially”
Exam: BMI 43 , BP 148/90, central adiposity, otherwise normal LFT
PCP concerned about gallstones and obtained a ultrasound which reported “echogenic liver”
WBC 5.2, Hct 42%, Platelet 205
LFT: ALT 72, AST 73, Alk Phos 85, TB 0.5

Is there SLD and atleast 1 cardiometabolic risk factor ?

Any concern for excessive alcohol

Are there any other causes of steatosis
- Medications - MTX, steroids, tamoxifen
- HCV
- Celiac disease
- Endocrine - hypothyroid, PCOS, GH def, panhypopituitarism

Check HbA1c
Check Lipid Panel
Consider checking TSH
Check Hepatitis C and Hepatitis B serology
Elevated ferritin in over 30%. Do not check HFE unless SF >1000
ANA (>1:160) or ASMA (>1:40) in upto 40%

NEXT STEP RISK STRATIFICATION

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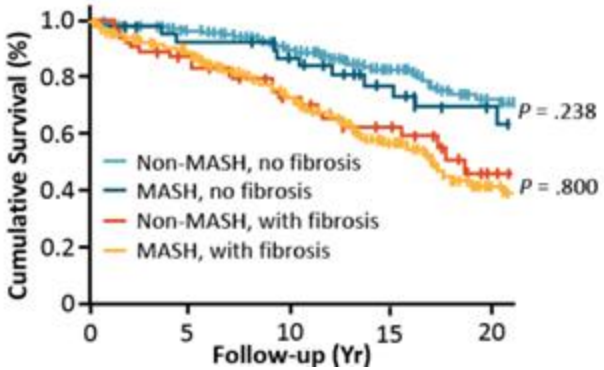
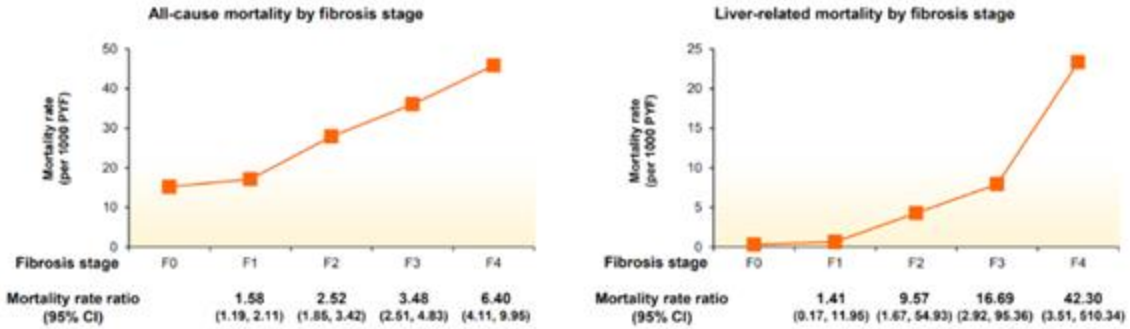
Severity of Fibrosis Is The Only Predictor Of Prognosis
Fibrosis stage is associated with overall mortality, OLT, liver-related events

Retrospective study in patients with MASLD
N= 619



Meta-analysis of 5 multinational cohorts
(17,452 patient-years of follow-up)



Risk of liver-related mortality increases exponentially with increasing fibrosis stage

CI, confidence interval; PYF, patient-years of follow-up; NASH, non-alcoholic steatohepatitis.
Dulai PS et al. *Hepatology*. 2017;65:1557–1565.

CLDF
Chronic Liver Disease Foundation

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Hepatology 54(4);1208-16
Slide credit: clinicaleducationalliance.com

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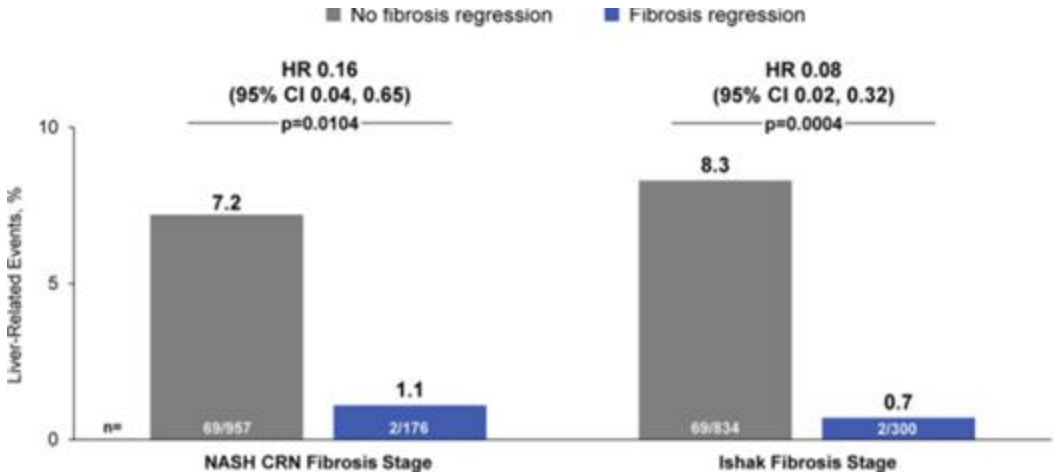
Regression Of Cirrhosis Associated with Improved Clinical Outcomes

- Pooled analysis 1135 patients with MASH cirrhosis from STELLAR 4 and Simtuzumab studies
- Improvement in MASH fibrosis stage was associated with a lower risk of liver related event



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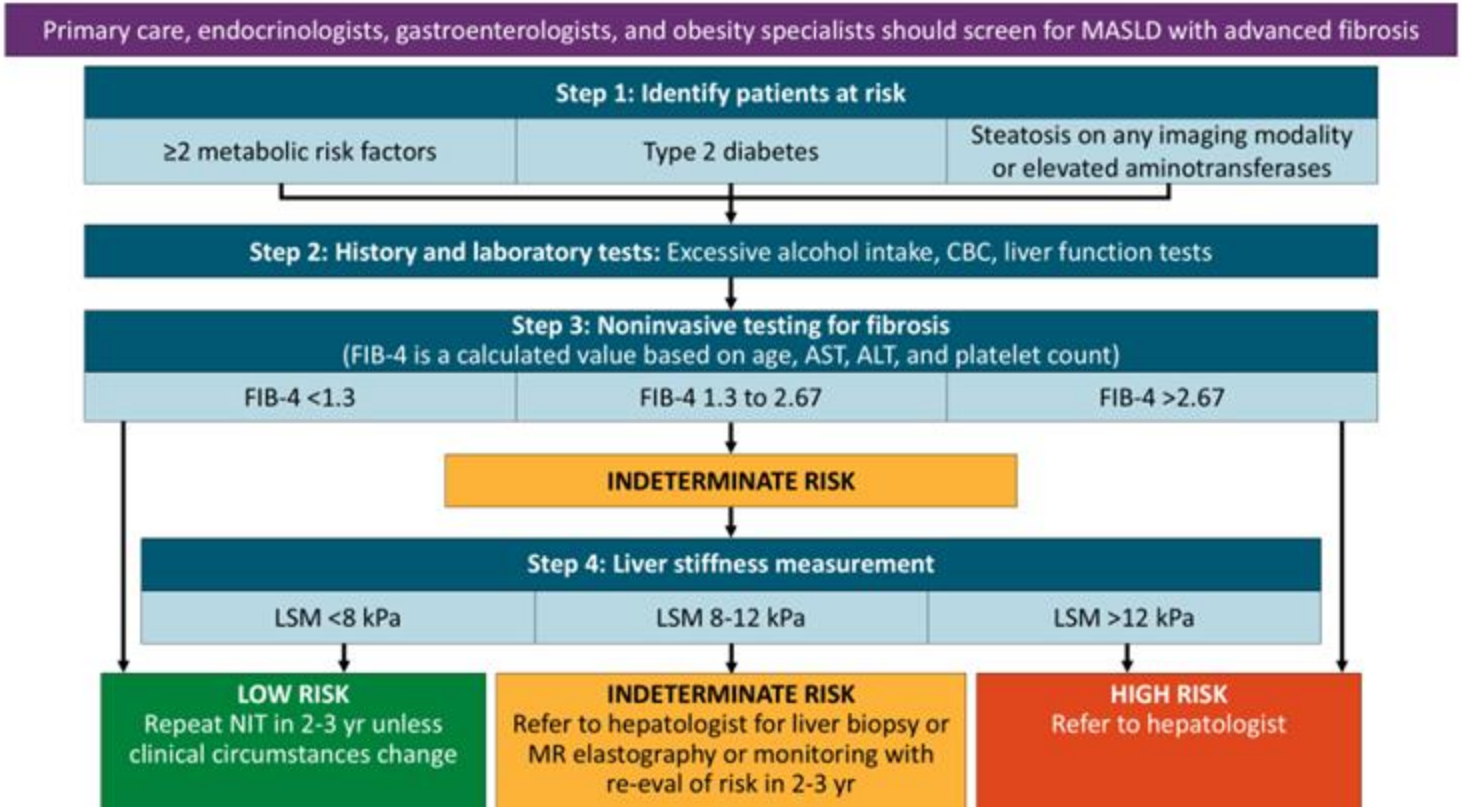
Sanyal A, et al. Hepatology 2022 May; 75(5):1235-1246

Screening Algorithm



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Kanwal F. et al. GAstroenterology. 2021. Eddowes PJ,etal GAstroenterology 2019, Papatheodoridi M et al. J Hepatol

Slide credit: clinicaleducationalliance.com

FIB-4 - Easy To Calculate In Office With Online Calculators

$$\text{FIB-4} = \frac{\text{Age (Years)} \times \text{AST Level (U/L)}}{\text{Platelet Count (10}^9\text{/L)} \times \sqrt{\text{ALT (U/L)}}} = \bigcirc$$

Our patients calculated FIB-4 - 2.01

FIB-4 cut-off scores and accuracy for measurement of Advanced Fibrosis*[2]

<1.3	Indeterminate	≥2.67
Absence of Advanced Fibrosis		Presence of Advanced Fibrosis
Sensitivity of 82% **18%** of patients with Advanced Fibrosis are missed		Specificity of 93% **7%** of patients are wrongly diagnosed with Advanced Fibrosis

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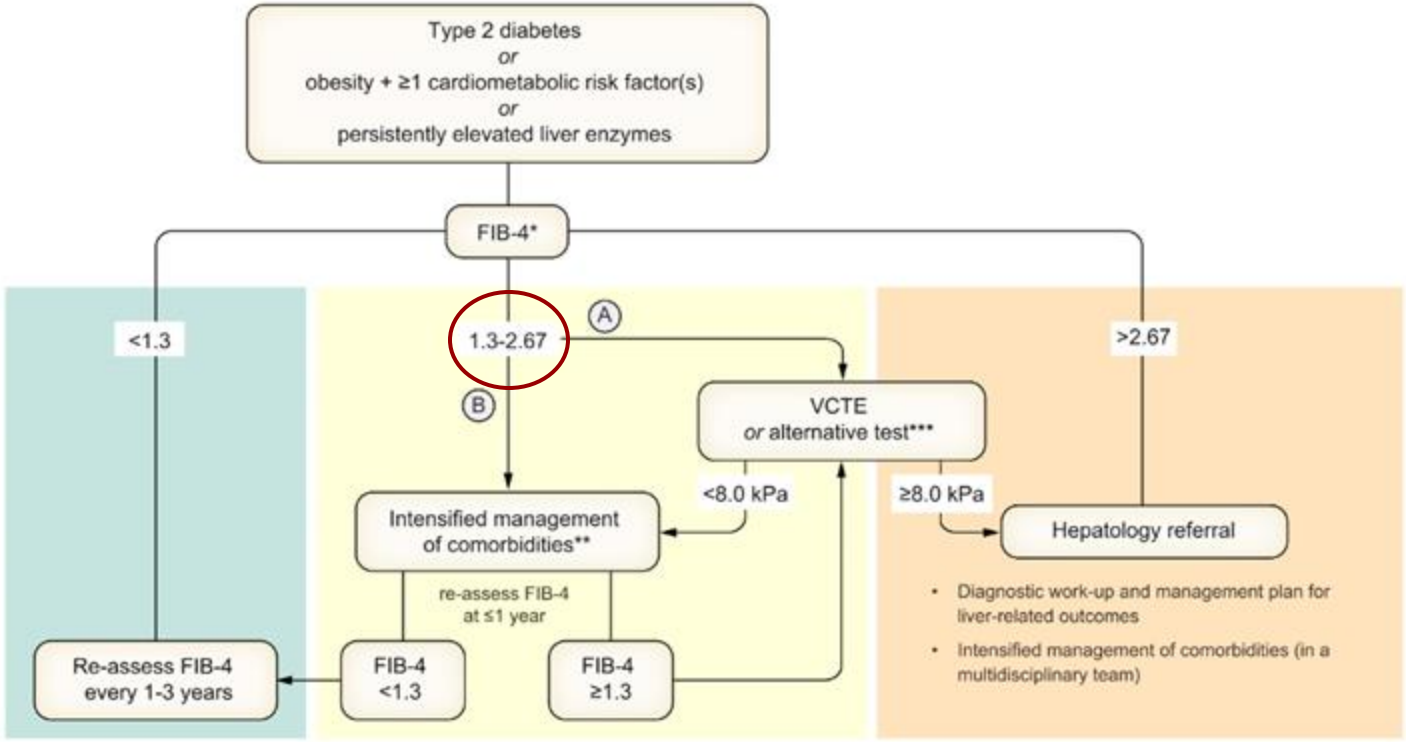
FIB-4, fibrosis-4; URL, Uniform Resource Locator

1. Fibrosis-4 calculator. Available at: https://www.mdcalc.com/fibrosis-4-fib-4-index-liver-fibrosis. (Accessed September 2019); 2. Alkhouri N et al. *Gastroenterol Hepatol* (NY) 2012;8(10): 661–668.



* FIB-4 thresholds valid for age ≤65 years (for age >65 years: lower FIB-4 cut-off is 2.0)
** *e.g.* lifestyle intervention, treatment of comorbidities (*e.g.* GLP1RA), bariatric procedures
*** *e.g.* MRE, SWE, ELF, with adapted thresholds
Ⓐ and Ⓑ are options, depending on medical history, clinical context and local resources

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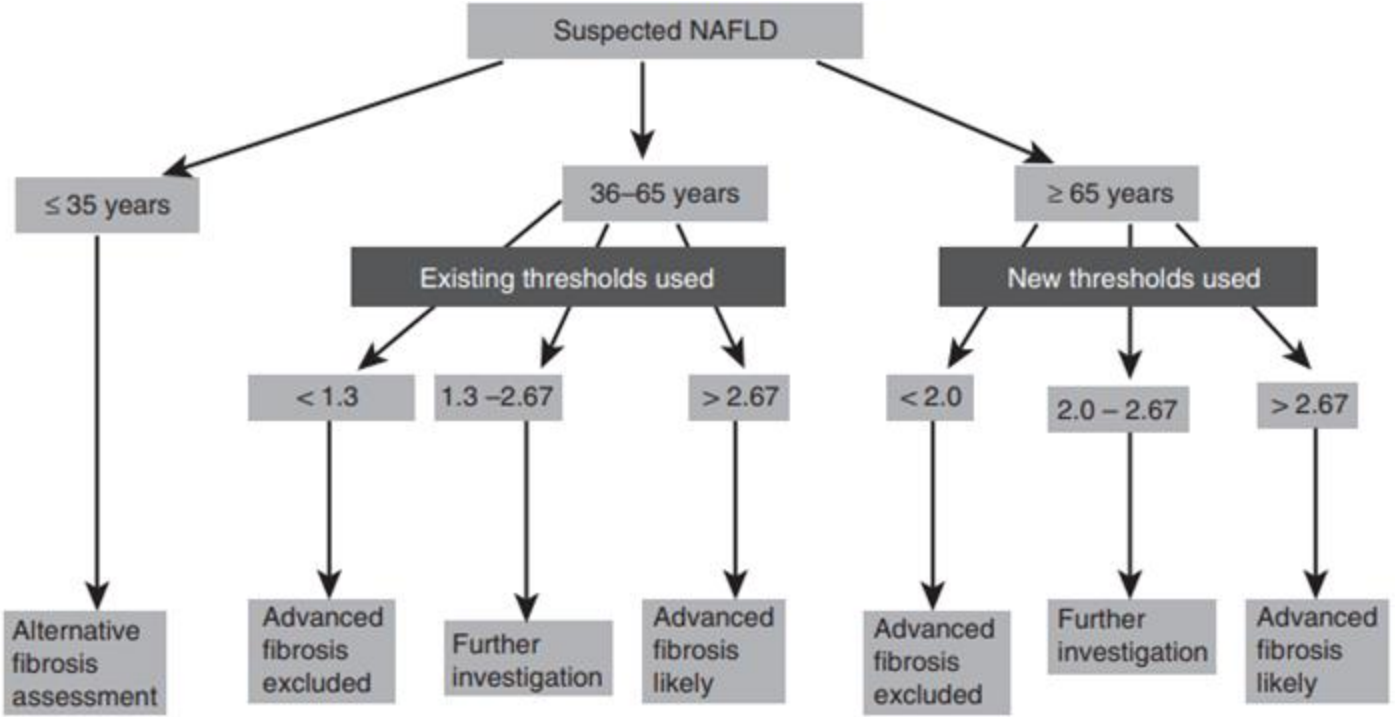
Age specific use of FIB-4 score



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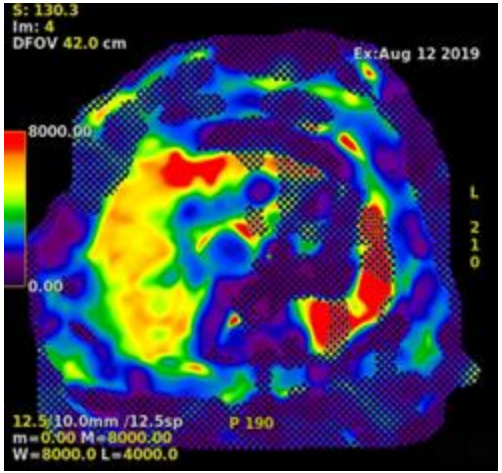
McPherson et al.Am J Gastroenterol 2017 May;112(5):740-751

Patient C.J

Because FIB-4 was 2.01, our patient underwent MR elastography as part of secondary risk assessment.



1. Average liver shear stiffness is substantially abnormal at 5.0 kPa + / - 0.2 kPa, suggestive of stage 3-4 vs stage 4 fibrosis according to the Mayo classification
2. Minimal hepatic steatosis. Average fat fraction of liver is minimally elevated at 9% + / - 2%.
3. Mild splenomegaly again noted but no varices. Probably trace ascites noted.

What tools do we have for use for secondary risk assessment for patients with MASLD?

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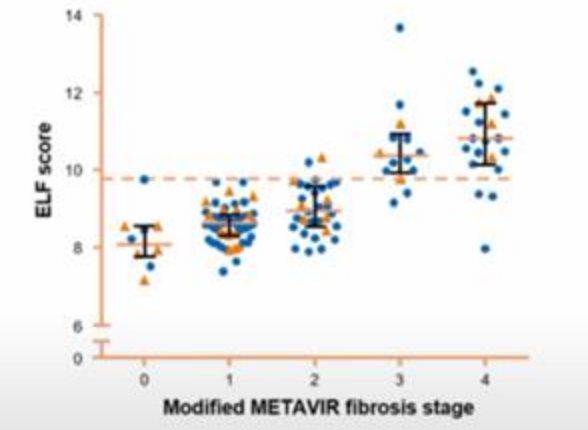
Enhanced Liver Fibrosis (ELF) Score

Proprietary blood test
Algorithm incorporating 3 common serum markers

- HA (hyaluronic acid)
- PIIINP (amino-terminal propeptide of type III procollagen)
- TIMP-1 (tissue inhibitor of metalloproteinase -1)

ELF		
Score < 7.7	Score 9.8-11.3	Score > 11.3
Rules out fibrosis	Predicts fibrosis	Predicts cirrhosis



ELF > 9.8 predicts advanced fibrosis

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Lichtinghagen R et al. J hepatol. 2013;59:236-42

Liver Stiffness —> Indirect Measure Of Liver Fibrosis Ultrasound Based Imaging (VCTE, Fibroscan ™)

- Designed to explore a 3 cm^3 volume of liver tissue
- 50-Hz shear wave induced from tip of FibroScan probe

LSM (kPa)

FIBROSIS:
Measures velocity of low frequency shear waves propagating through the liver

CAP(dB/m)

STEATOSIS:
Can simultaneously measure liver fat using CAP

Quick, bedside test
Limited by obesity, food intake, operator experience
Positive predictive value poor (40-50%). However high negative predictive value (>95%)

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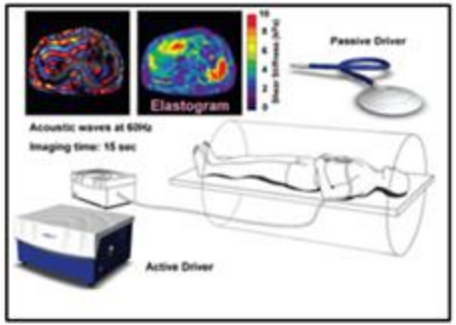
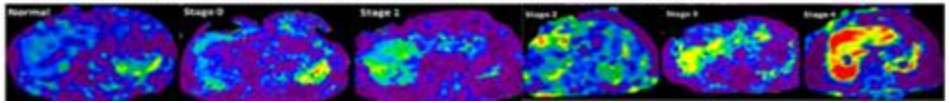
Liver Stiffness Assessment Using MR-elastography



MR Elastography (kPa)

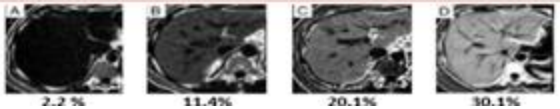
Fibrosis:
Modified phase-contrast pulse sequence to visualize rapidly propagating mechanical shear waves (~60 Hz)[1]

MRE Stiffness maps showing increasing liver stiffness with increasing stages of fibrosis[1]



MRI-PDFF (% fat fraction)

Steatosis:
Exploits the difference in resonance frequencies of protons in water and fat to provide estimates of tissue fat fraction[2–4]



MRE has excellent diagnostic performance for diagnosis of advanced fibrosis and cirrhosis

Not confounded by liver steatosis
Not confounded by BMI
Less accessible, more expensive

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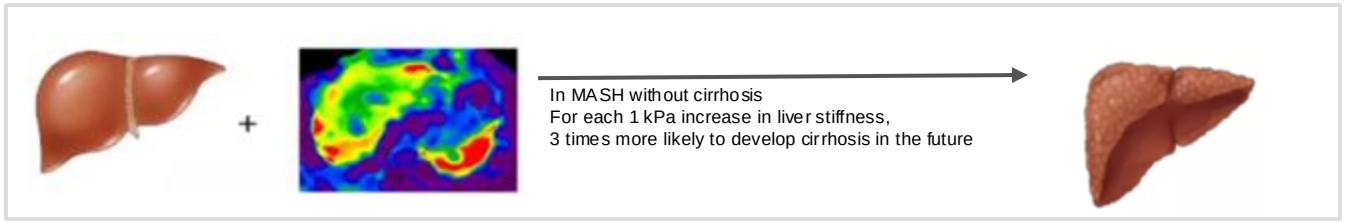
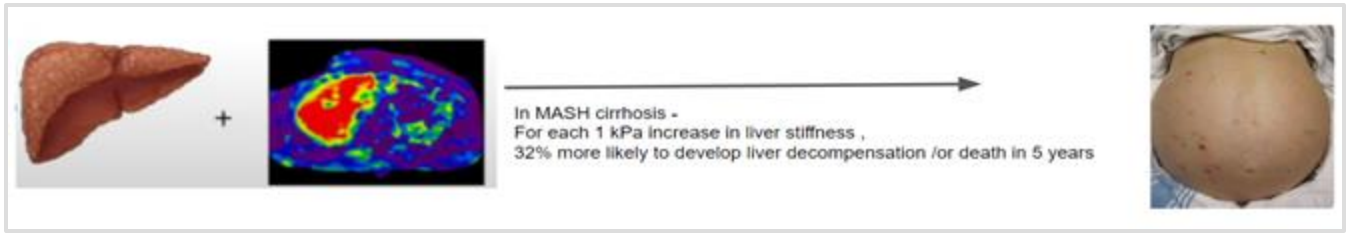
Liang JX et al. J Hepatol 2023

MRE Predicts Future Cirrhosis, Liver Decompensation and Death

Retrospective study in adults with MASLD. N=1269, 821 noncirrhotics, 277 compensated cirrhosis and 171 decompensated cirrhosis





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Gidener T et al. Clin Gastroenterol Hepatol 2021 Sep;19(9):1915-1924

When Do We Consider Liver Biopsy?

Those patients designated to the intermediate/high-risk group based on NIT but with a high suspicion of cirrhosis, liver biopsy should be considered.

When there is diagnostic uncertainty (possible concomitant diagnoses), liver biopsy maybe considered.

- Invasive, risks
- Sampling variability
- Inter observer discordance
- Aides in ruling out other overlap liver disease
- Is essential prior to drug treatment/clinical trials

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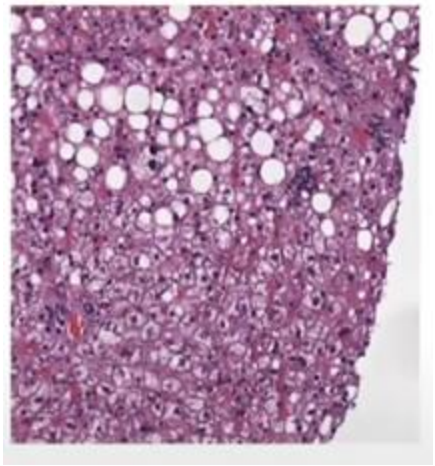
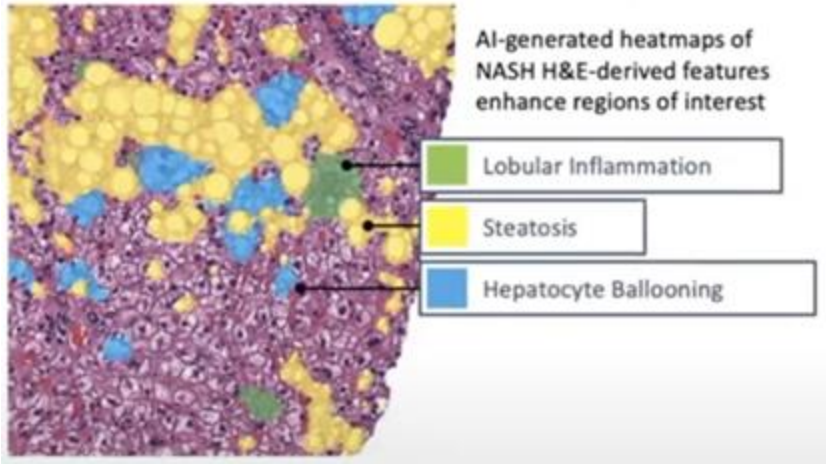
PathAI - The Power Of AI in MASH Histology



Enhancing what we see



Tools to assist pathologist with identifying histologic features of MASH, thereby reducing reader variability

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PathAI

Patient C.J

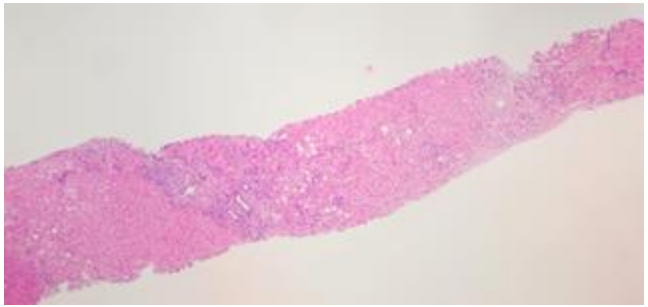
Final Diagnosis

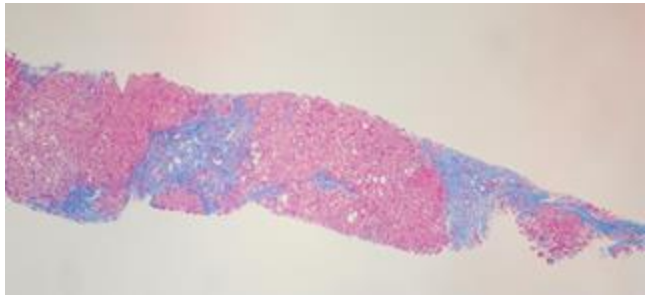
1. SEGMENTS 3 AND 4 OF LIVER, CORE BIOPSY:

A. Hepatic parenchyma with bridging fibrosis and regenerative nodule formation, consistent with cirrhosis (highlighted on trichrome stain; Batts-Ludwig stage 4).

B. Mild to moderate steatosis with mild lobular inflammation, but without ballooning hepatocyte degeneration. See comment.

C. Portal tracts with patchy mild to focally moderate mixed inflammation.





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Treatment Options

“ Holy grail” : resolution of MASH and improvement of hepatic fibrosis

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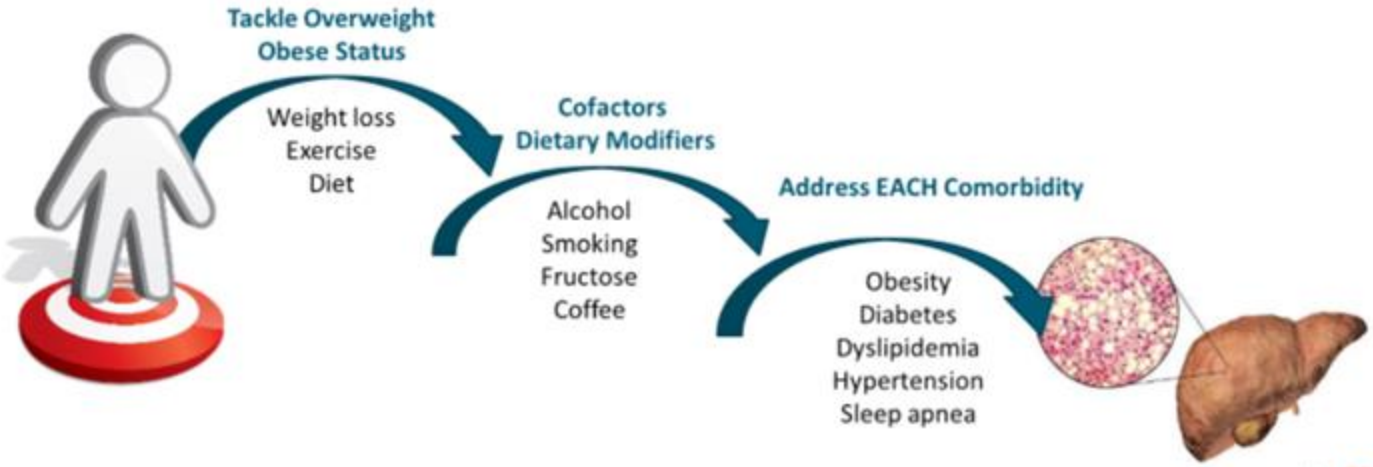
Management MASLD In Primary Care

Early Intervention Is Critical In reducing Liver Related Mortality



Chalasani. Hepatology. 2018;67:328. Ando. Clin Liver Dis (Hoboken). 2021;17:23.

Slide credit: clinicaloptions.com

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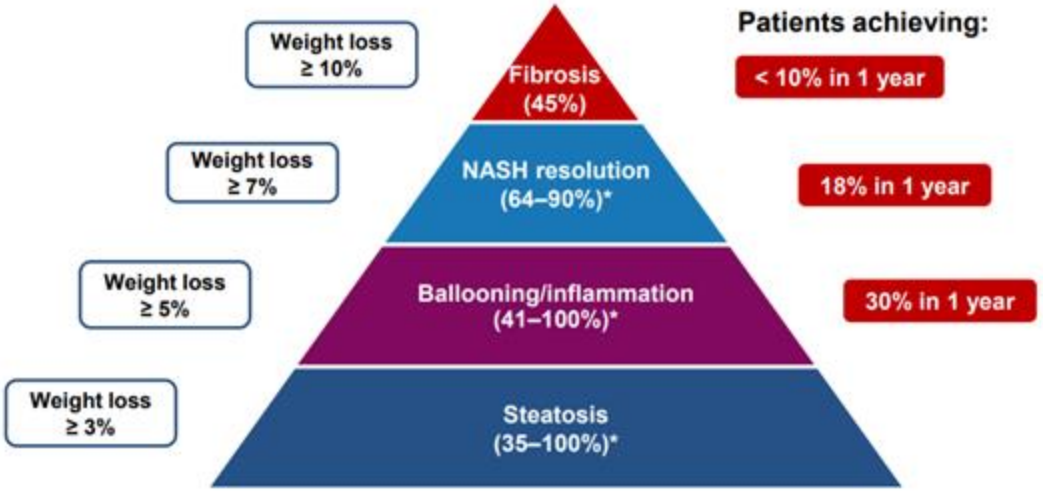
MASLD - TREATMENT



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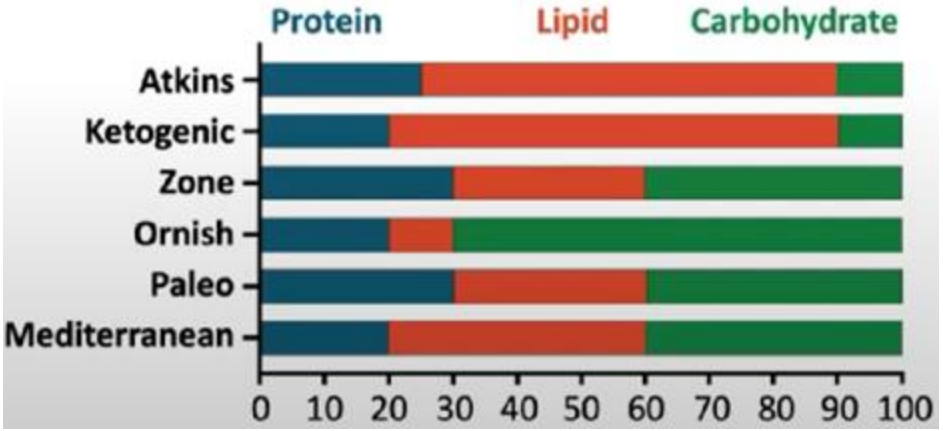
Weight Loss Diets

Goal: Create caloric deficit

- Macronutrient manipulation (eg high protein, low carb)
- Timing manipulation (eg intermittent fasting)



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Freire, Nutrition, 2019;69:110549

Mediterranean Diet

Vegetables, fresh fruits, nuts, salmon, fish, white meat

Limite simple sugars / limit red meat

Less processed food

“Green Mediterranean diet” - green plants, green tea, polyphenols

Sociocultural adaption in non-mediterranean western regions

Associated with reduced hepatic steatosis, improved insulin sensitivity, lowers mortality by reducing risk of CVD and DM

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INTERMITTENT FASTING (IF)

Basic principle: when rather than what is eaten

Meta -analysis including 6 studies examining effects of IF noted significant difference in body weight, BMI, AST/ALT in fasting group compared to control
Improvement in dyslipidemia
Safe in MASLD
Improvement in MASLD as assessed by NIT

Limited long term data but initial data suggests benefit in hepatic steatosis
Extreme fasting should be avoided

Memel ZN et al Clin Liver Dis (Hoboken). 2022 Feb 3;19(3)

KETOGENIC DIET

Study of effects of an Eight Week Very Low-Calorie Ketogenic Diet (VLCKD) in MASLD
VLCKD improves low grade inflammation . And therefore the authors hypothesized that VLCKD may improve liver inflammation

Lack of long term safety data

De Nucci S et al Nutrients. 2023 Oct 21;15(20):4468.

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COFFEE

Has caffeine, antioxidants, polyphenols

Improves hepatic steatosis and steatohepatitis
Decreases risk of progression to cirrhosis
Decreases mortality rate in patients with known cirrhosis
Decreases rate of hepatocellular carcinoma in patients with known liver disease

“Dose” = 3 cups/day

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frontiers in Microbiology

Front Microbiol. 2018; 9: 1602.
Published online 2018 Jul 20. doi: 10.3389/fmicb.2018.01602
PMCID: PMC6062601
PMID: 30079055

Genetically Obese Human Gut Microbiota Induces Liver Steatosis in Germ-Free Mice Fed on Normal Diet

Ruirui Wang,[1] Hui Li,[1] Xin Yang,[1] Xinhe Xue,[1] Liman Deng,[1] Jian Shen,[2] Menghui Zhang,[1] Liping Zhao,[1,2,3] and Chenhong Zhang[1,*]

Gut microbiota from obese humans induced hepatic steatosis in germ-free mice

This effect was not seen of microbiota from the same patient after weight loss

Could the changing gut in the past 50 years be the cause of increase MASH prevalence now

Could the gut microbiome be a potential preventive and therapeutic target

Recent study published in BMC GAstroenterology (August 2024)
Overall, supplementation with probiotic, prebiotic, or synbiotic had a positive effect on reducing liver enzymes, lipid profiles, and inflammatory cytokines in patients with MASLD.

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Ruiru Wang et al. frontiers 2018; Pan, Y., et al.\. *BMC Gastroenterol* 24, 283 (2024).

Other Supplements

Vit D: No clear evidence of benefit in MASLD. But deficiency may play a role in pathogenesis of MASLD
Vit C: no strong evidence

Omega 3 fatty acids: Appears to reduce steatosis, but no effect on steatohepatitis, fibrosis or IR.

Alpha lipoic acid: improvement in IR, adiponenctin, leptin, IL-6, but does not appear to improve hepatic steatosis

Statin Use In MASLD

Study population : 7988 patients with MASLD , underwent at least 2 vibration controlled transient elastography
40.5% of patients were on statins

Primary outcome : all-cause mortality and liver-related events, including cirrhosis, hepatocellular carcinoma, or liver-related mortality.
Secondary outcomes : changes in liver stiffness assessed over a median follow-up duration of 4.6 years

- Statin use was associated with a 76.7% lower risk for all-cause mortality
- Statin use was associated with 62% lower risk of liver-related events
- Statin use also was associated with a ~ 46% and 55% lower risk for liver stiffness progression
- No significant association was found between statin use and liver stiffness regression.

Statin may help reduce CVD morbidity and mortality rates and may reduce liver stiffness progression

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Zhou X, *et al*Long-term liver-related outcomes and liver stiffness progression of statin usage in steatotic liver disease *Gut* 2024;**73:**1883-1892.

Exercise Recommendations

Both aerobic and resistance exercise appear to have similar effects on hepatic steatosis
Aerobic exercise 150-240 minutes/week of moderate to vigorous intensity exercise
Need to tailor to individual patient
And needs to be combined with caloric restriction
Benefit is lost if exercise habits stop

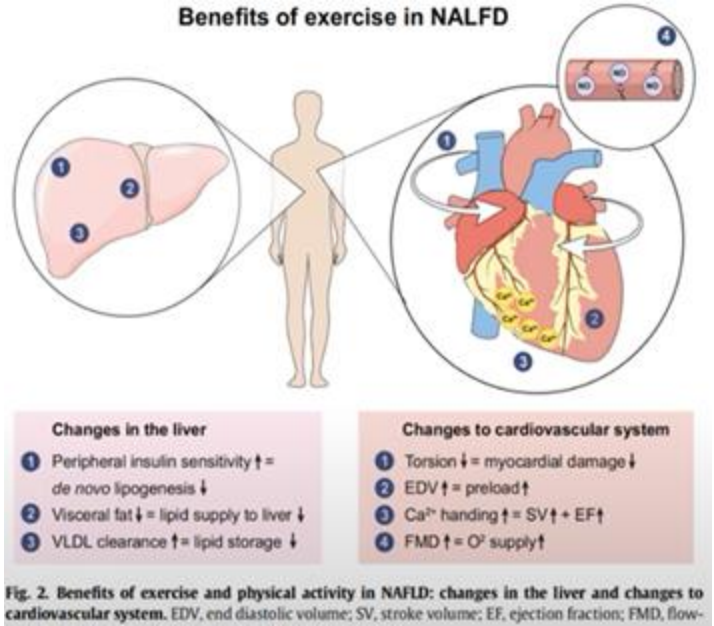
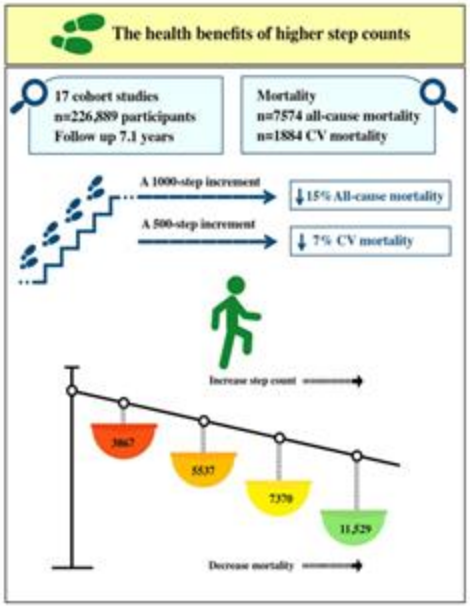


Fig. 2. Benefits of exercise and physical activity in NAFLD: changes in the liver and changes to cardiovascular system. EDV, end diastolic volume; SV, stroke volume; EF, ejection fraction; FMD, flow-



Romero-Gomez. J. hepatol. 2017:67:829-846,
Maciej Banach *et al.European Journal of Preventive Cardiology*. doi:10.1093/eurjpc/zwad229

Alcohol

In patients with MASLD even moderate alcohol consumption has a supra-additive effect with metabolic risk factors, exponentially increasing the risk of liver fibrosis. These results suggest that there are no safe limits of daily alcohol intake in patients with MASLD.

HCC risk increased from MASLD and MetALD to ALD in a stepwise manner, compared with non-MASLD.

- **NO safe limit of daily alcohol intake in patients with MASLD and MetS**
- **For primary prevention of HCC - a comprehensive approach is required to modify both metabolic dysfunction and alcohol intake habit.**

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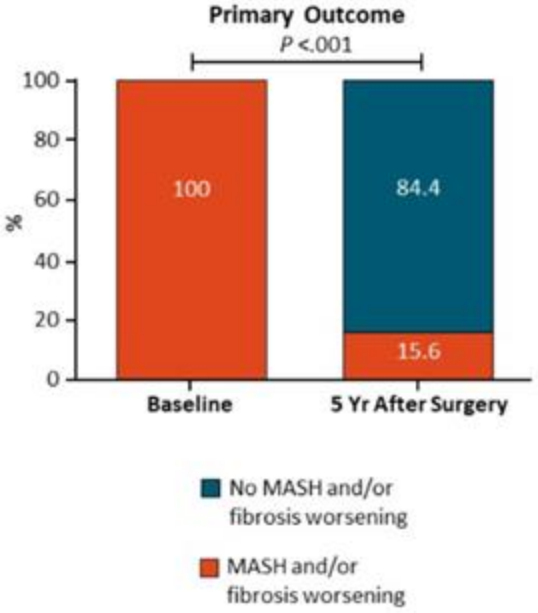
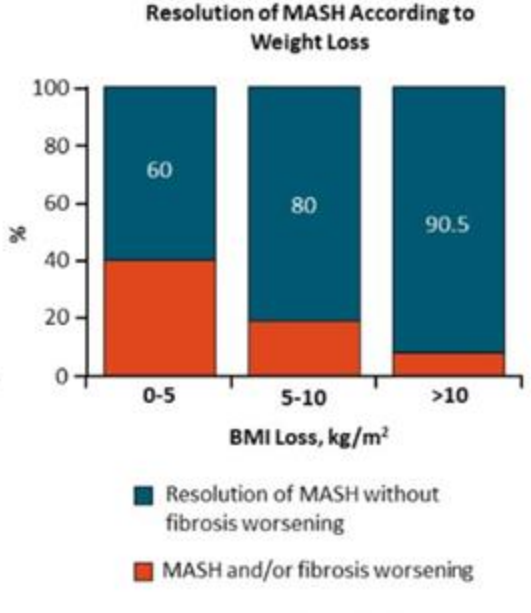
Yun B, et al. Am J Gastroenterol. 2024 Jun 27; Marti-Aguado D, et al. J Hepatol. 2024 Jul 4.

Bariatric Surgery For Management of MASLD

- French single-center study of bariatric surgery in patients with severe obesity with biopsy-confirmed MASH (N = 180)
- At 5 yr post surgery, 64/94 patients (84%) had MASH resolution with no worsening of fibrosis
- MASH improvement correlated with weight loss





Lassailly. Gastroenterology. 2020;159:1290.

Slide credit: clinicaleducationalliance.com

cea clinical education alliance

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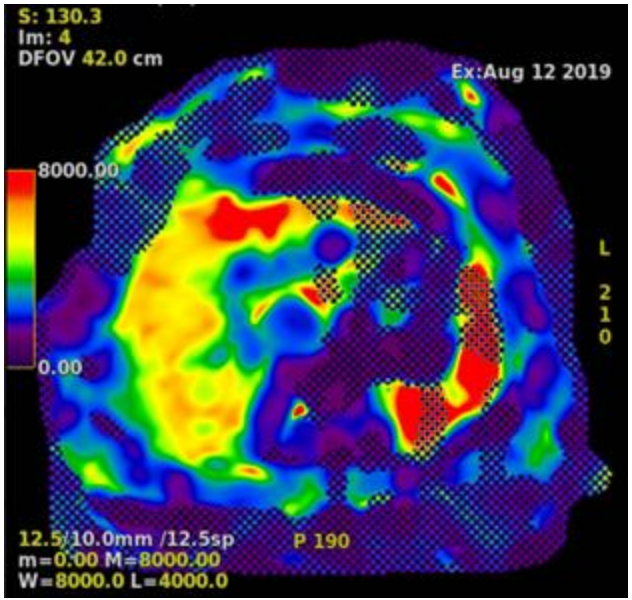
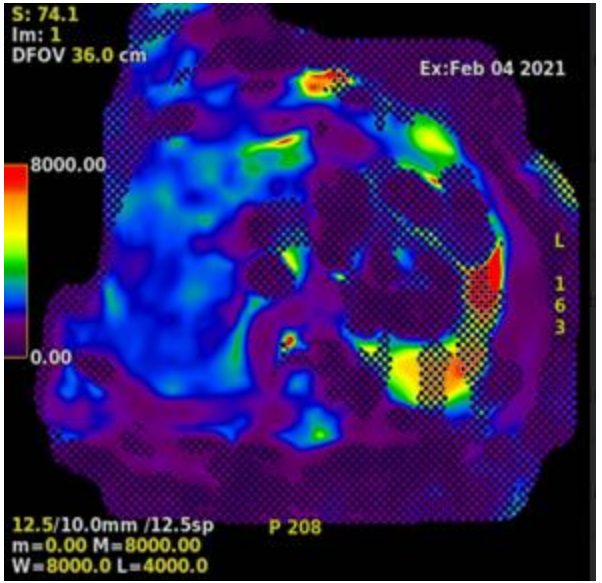
C.J 12/31/2029 - Underwent bariatric surgery and lost 100 pounds

6/12/2019



2/4/2021



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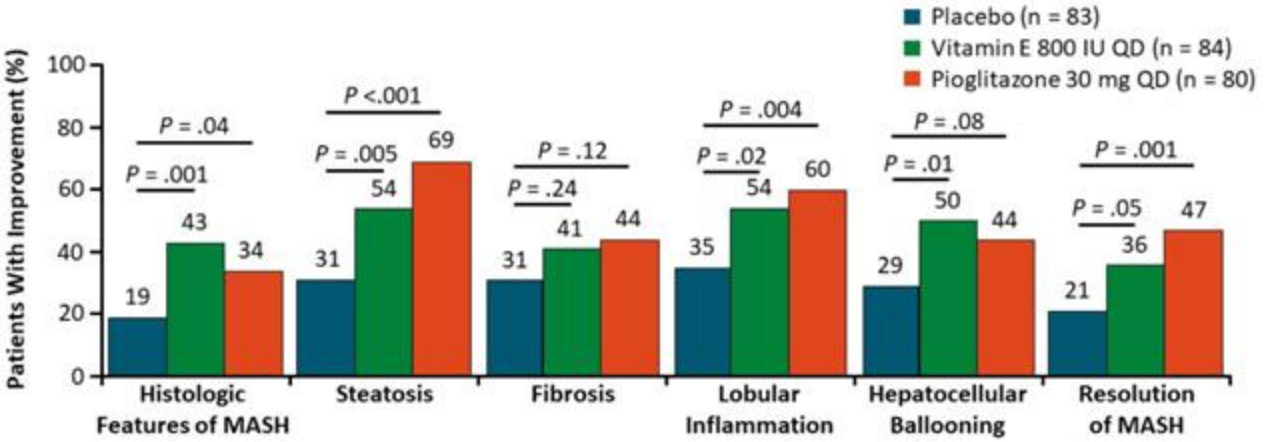
PIVENS TRIAL : Vit E vs Pioglitazone vs Placebo

Biopsy proven MASH, no type 2 diabetes, No cirrhosis

Vit E, Pioglitazone
Phase 3 96 weeks



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Sanyal AJ et al. N Engl J Med 2010

Vit E and Pioglitazone (Off Label)

- Vitamin E (800 IU/day)
  - Possible all-cause mortality risk at > 800 IU/day[1]
  - Increased hemorrhagic stroke risk[2]
  - Also shows reduced ischemic stroke risk
  - Increased prostate carcinoma risk (HR vs placebo: 1.17; 99% CI: 1.004-1.36; *P* = .008)[3]
- Pioglitazone
  - Edema, weight gain (~ 2-3 kg over 2-4 yr)[4]
  - Risk of osteoporosis in women[5]
  - Equivocal bladder cancer risk
    - Increased in some studies[6]
    - No association in most studies[7,8]

Small subset of patients may benefit (without cirrhosis),need histologically confirmed MASH, consider risk vs benefit

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1. Miller. Ann Intern Med. 2005;142:37. 2. Schurks. BMJ. 2010;341:c5702. 3. Klein. JAMA. 2011;306:1549.
4. Bril. Diabetes Care. 2017;40:419. 5. Yau. Curr Diab Rep. 2013;13:329. 6. Tuccori. BMJ. 2016;352:i1541.
7. Lewis. JAMA. 2015;314:265. 8. Davidson. Diabetes Complications. 2016;30:981.

Slide credit: clinicaleducationalliance.com
cea clinical education alliance

MASH Agents in Phase 3 Clinical Developments

Agent	Target (Mechanism)	Trial, Patients, and Primary Endpoint(s)
Resmetirom	Lipotoxicity (TRβ agonist)	**MAESTRO-NASH (n = 2,000, fibrosis stage 2-3)** Approved • MASH resolution with ≥2-point improvement in NAS without worsening of fibrosis
Semaglutide	Lipotoxicity/ steatosis (GLP-1 RA)	**ESSENCE** • Resolution of steatohepatitis and no worsening of liver fibrosis • Improvement in liver fibrosis and no worsening of steatohepatitis • Time-to-first liver-related clinical event
Lanifibranor	Lipotoxicity/ oxidative stress (PPARα/δ/γ agonist)	**NATiV3 (n = ~1,000, fibrosis stage 2-3)** • Resolution of MASH and improvement of fibrosis
Efruxifermin	Metabolic pathway regulation (FGF21 mimic)	**SYNCHRONY Histology (n = ~1,000, fibrosis stage 2-3)** • Resolution of MASH and a ≥ 1 stage improvement in fibrosis
Pegozafermin	Metabolic pathway regulation (FGF21 mimic)	**ENLIGHTEN-Fibrosis (n = ~1,050, fibrosis stage 2-3)** • Improvement of Fibrosis ≥1 Stage Without Worsening of MASH • MASH resolution without worsening of fibrosis

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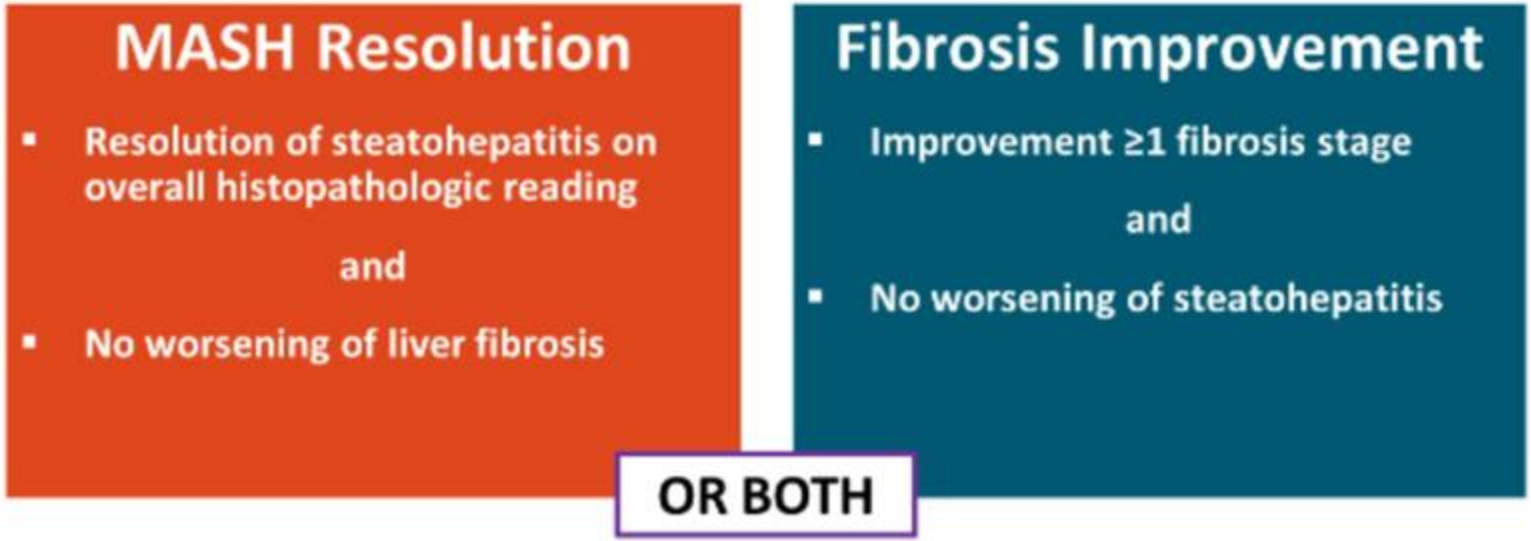
https://clinicaltrials.gov/study/NCT03900429; https://clinicaltrials.gov/study/NCT04822181
https://clinicaltrials.gov/study/NCT04849728https://clinicaltrials.gov/study/NCT06215716
https://clinicaltrials.gov/study/NCT06318169

FDA Efficacy Endpoints For Phase III Trials



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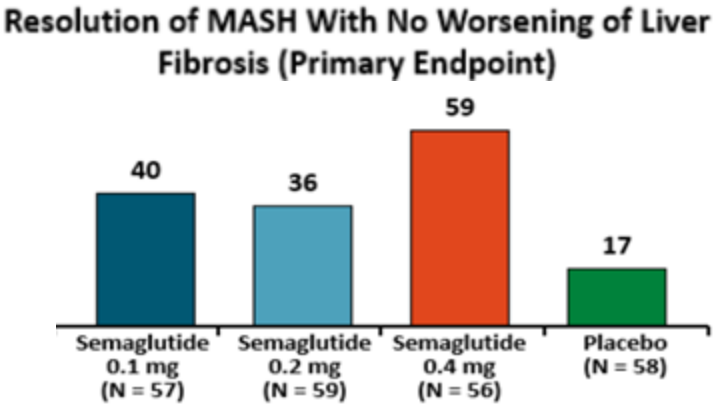
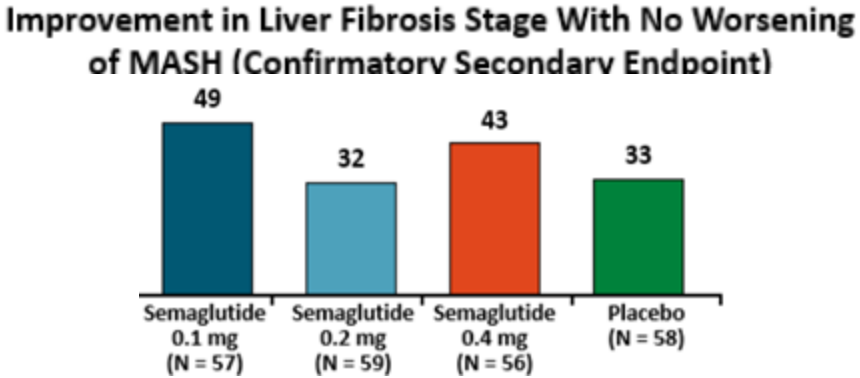
US FDA. Draft Guidance. Noncirrhotic MASH With Liver Fibrosis. December 2018

GLP 1 Analogue – Semaglutide in MASH

SEMAGLUTIDE, QW
Phase 2b 72 weeks





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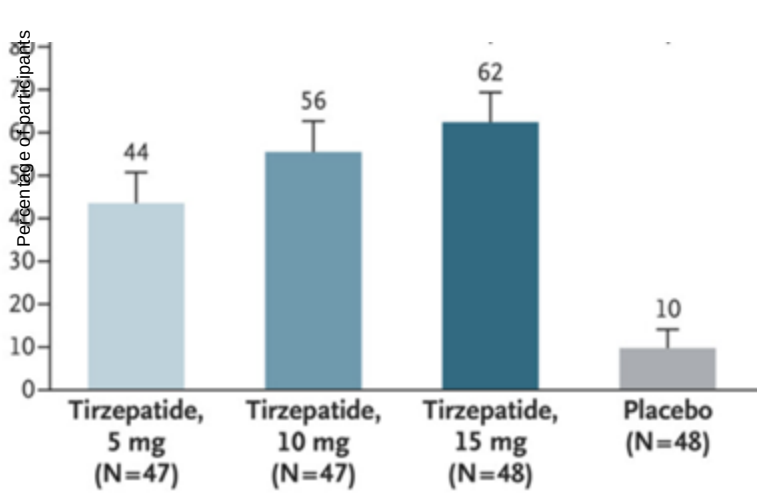
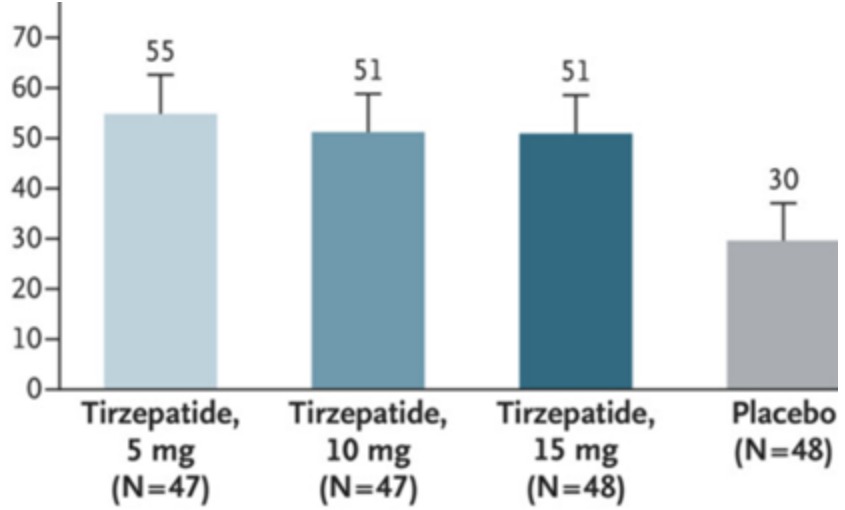
Adding GIP to GLP 1 Analogue – Tirzepatide



A Resolution of MASH and No Worsening of Fibrosis



B Decrease of ≥1 Fibrosis Stage and No Worsening of MASH

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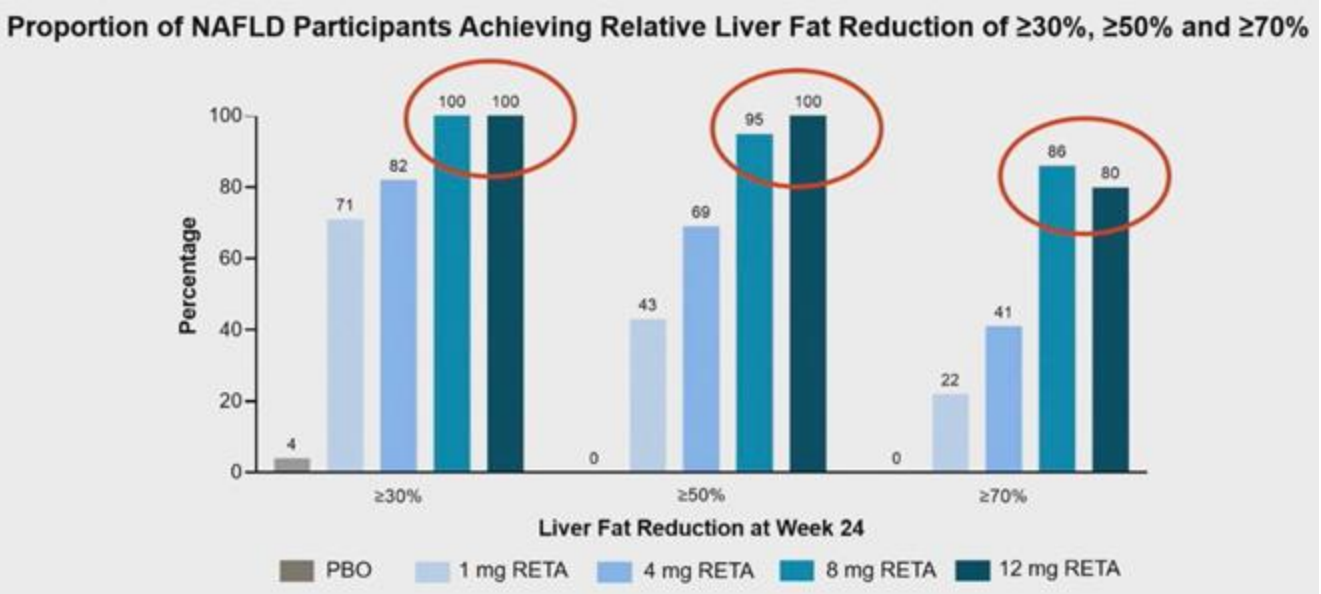
Add Glucagon Receptor Agonist to GIP and GLP-1 Analogue

Retatrutide

A Triple Hormone Receptor Agonist Stage 2a Trial



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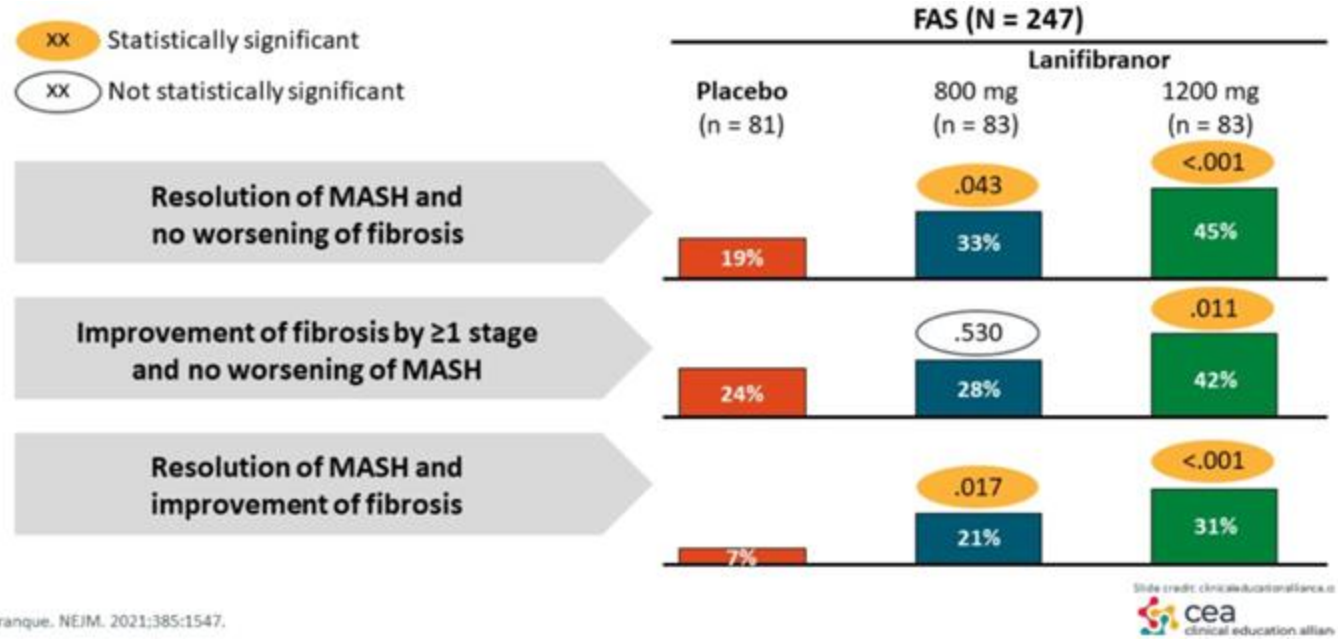
Sanyal, A.J et L. *Nat Med* 30, 2037–2048 (2024).

Pan-PPAR – Lanifibranor Native Phase 2B Noncirrhotics with MASH



Franque. NEJM. 2021;385:1547.

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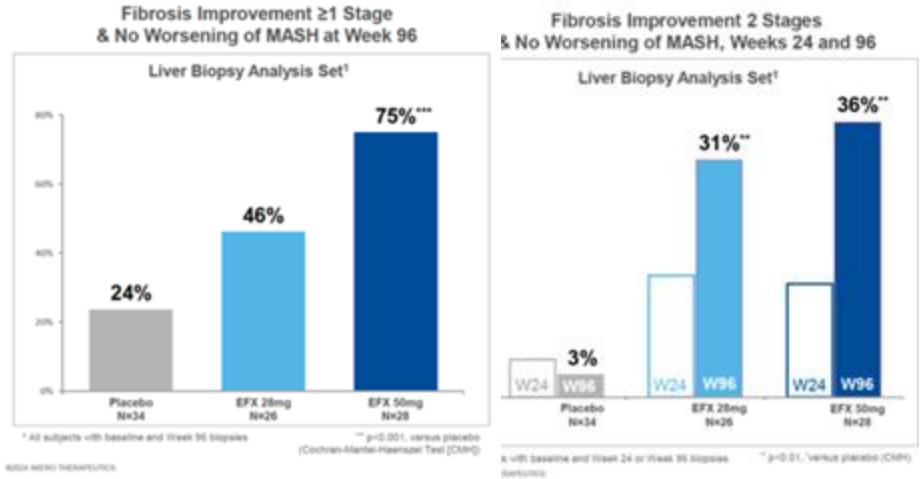
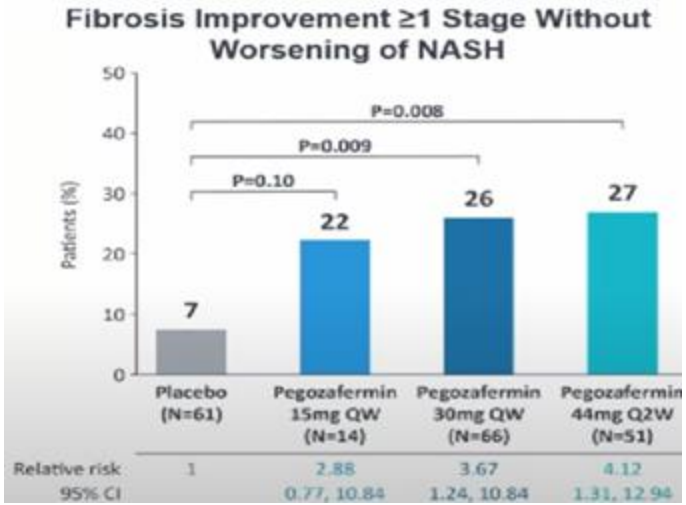
Francque SM et al.N Engl J Med 2021;385:1547-1558

FGF -21 Analogue

Efruxifermin - Phase 2B MASH Stage 2-3, Week 96



Pegozafermin - Phase 2B MASH Stage 2-3



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Ratziu V et. Al. EASL ILC 2024

FIRST FDA APPROVED DRUG FOR MASH

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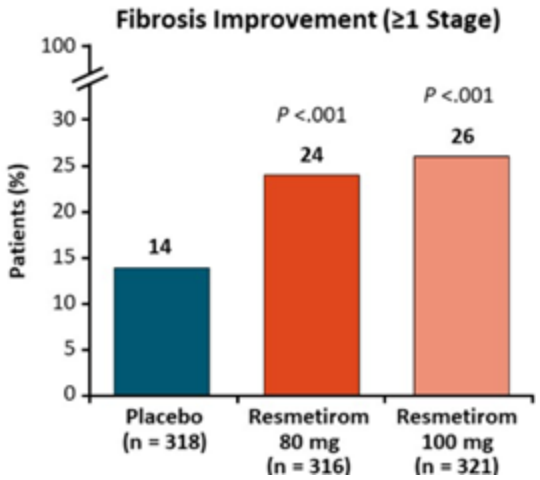
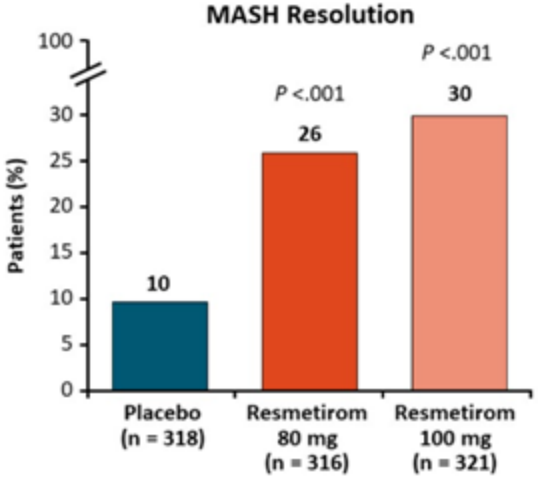
MAESTRO-NASH PHASE 3 TRIAL : Resmetirom 80mgs vs 100mgs vs placebo

Resmetirom Achieved Both Primary Endpoints at 52 weeks





First drug to be approved for MASH with F2-F3 fibrosis

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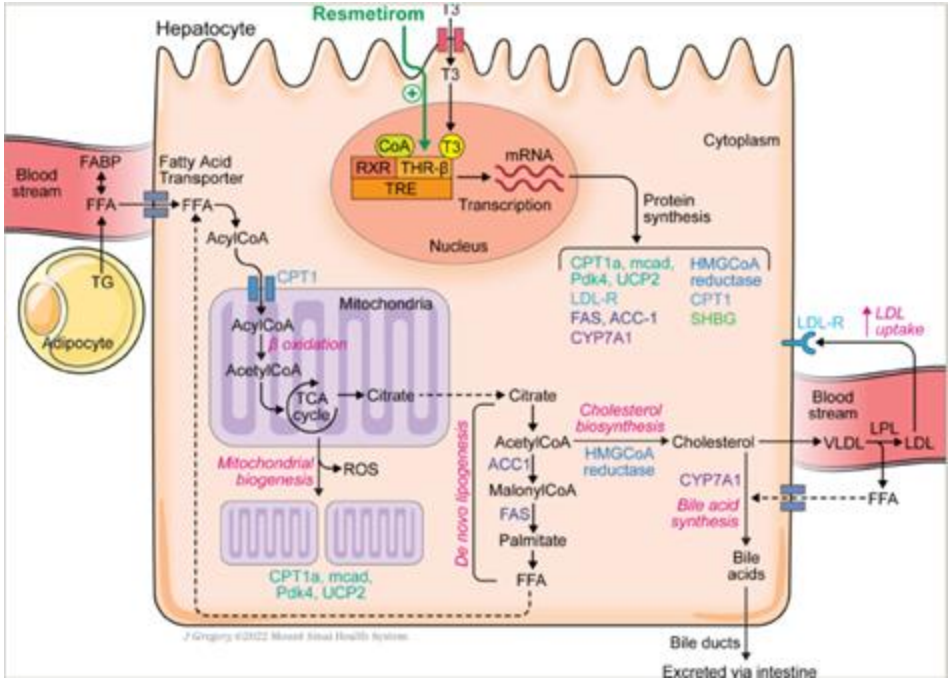
Slide credit: clinicaleducationalliance.com: cea clinical education alliance

Harrison. NEJM. 2024;390:497.

Resmetirom - Mechanism Of Action



THR-β agonism results in

- ⬇ LDL chol
- ⬇ Triglycerides
- reduces lipotoxicity, inflammation, oxidative stress , fibrosis

No thyrotoxicosis (THR-α effect)

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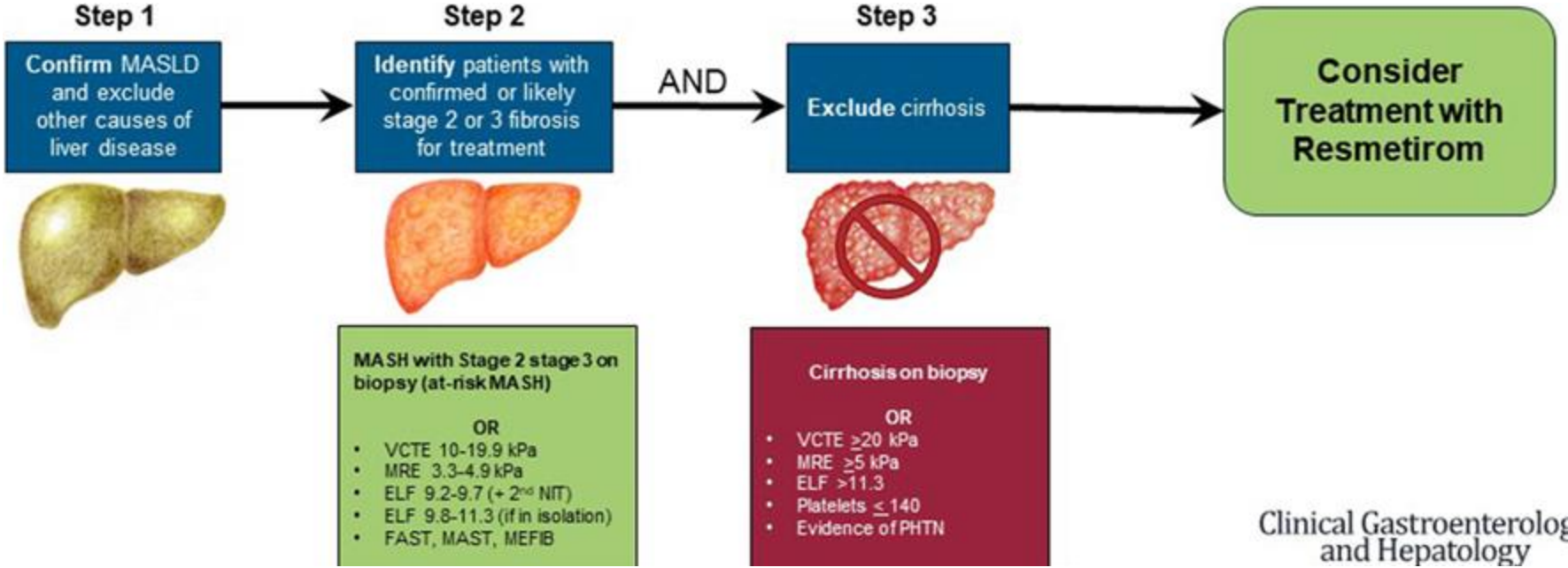

Clinical Gastroenterology and Hepatology

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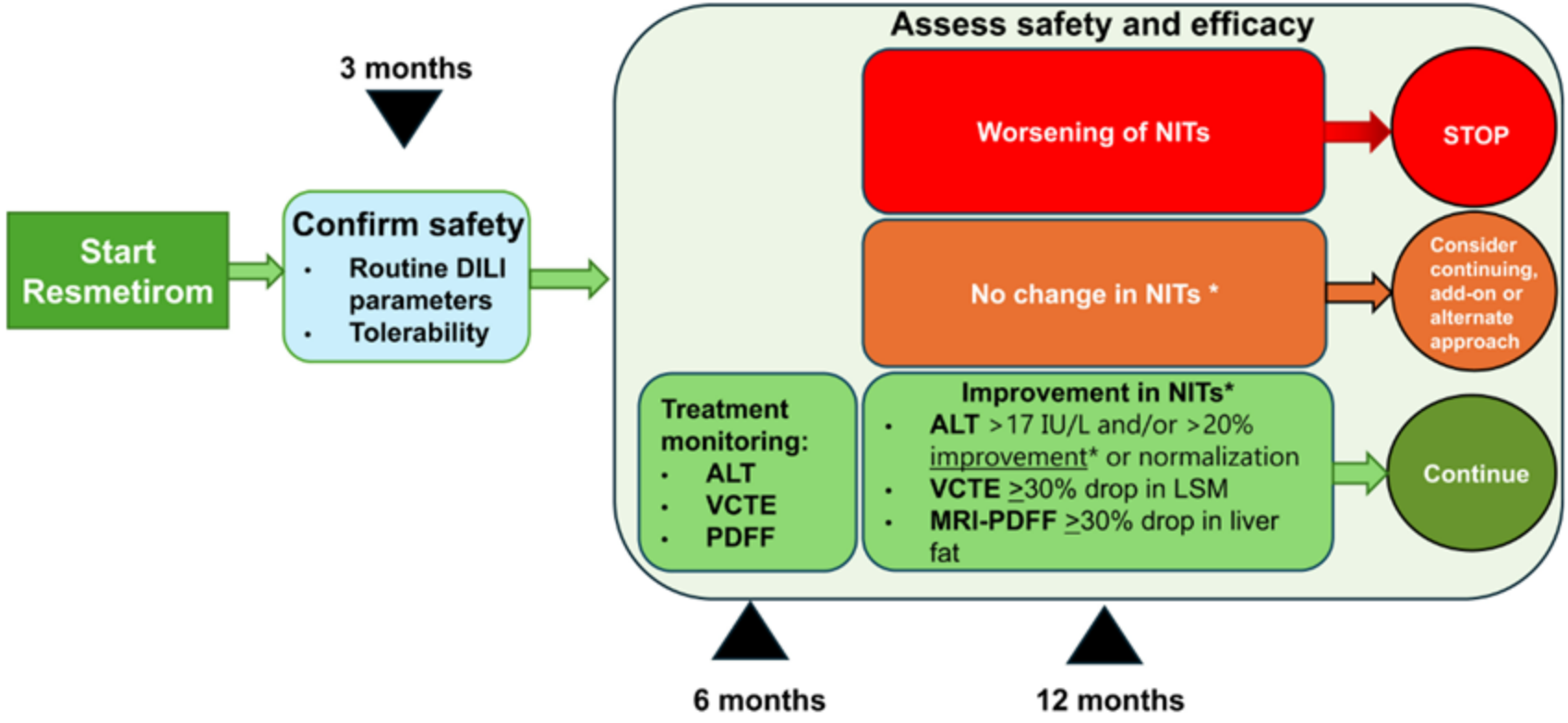
Noureddin, Mazen et al. Clinical Gastroenterology and Hepatology 2024 Jul 20



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Noureddin, Mazen et al.
Clinical Gastroenterology and Hepatology
2024 Jul 20

Summary

- MASLD is the new term replacing NAFLD, and MASH has replaced NASH
- MASLD is highly prevalent
- Important to identify those with MASH and advanced fibrosis and treat to prevent progression to cirrhosis
- Noninvasive assessment is now used for risk stratification and response assessment
- Patients with T2D warrant evaluation
- Lifestyle modifications and weight loss is mainstay of management
- Resmetirom now approved for treatment of MASH with Stage 2-3 fibrosis

Awareness Of MASLD

Use **A**lgorithms for risk stratification

Take **A**dvantage of evidence -based treatment options

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