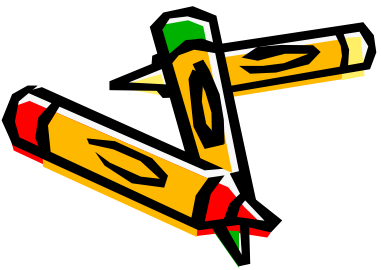


به نام خداوند جان و خرد

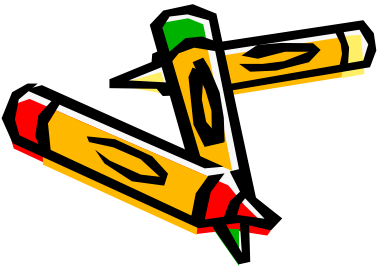
کبد چرب



- NAFLD
- NASH
- MAFLD
- MASLD
- METALD



REFFRENCE



- UPTODATE 2024
- کنگره گوارش 2023
- سمینار تبریز 2024
- سمینار اورمیه 2024

TERMINOLOGY

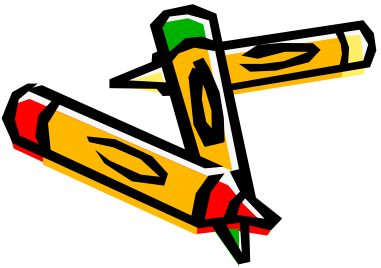
1845 Edison •

1884 Obese DM

1980 NAFLD MAYO CLINIC

2020 MAFLD

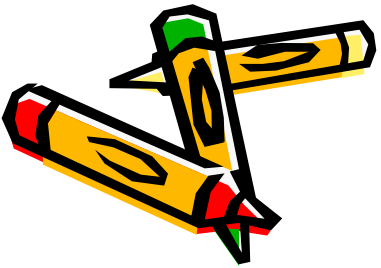
2023 SLD subgroup



- **Metabolic dysfunction-associated steatotic liver disease (MASLD)** – Patients with MASLD alone have fatty liver (>5 percent hepatic steatosis) with at least one risk factor for cardiometabolic dysfunction such as dyslipidemia or obesity (figure 1), no other causes of steatotic liver disease, and minimal or no alcohol consumption (ie, <20 g daily for females and <30 g daily for males).

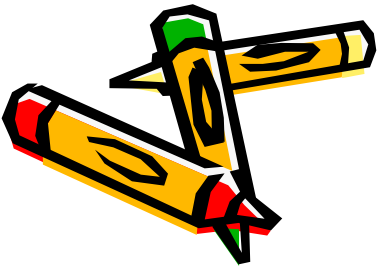
  This category was formerly known as nonalcoholic fatty liver disease (NAFLD).

- **Metabolic dysfunction- and alcohol-associated liver disease (MetALD)** – Patients with liver steatosis, at least one metabolic risk factor, and a history of moderate (but not heavy) alcohol use have metabolic dysfunction- and alcohol-associated liver disease (MetALD). This category recognizes that steatotic liver disease can involve a combination of metabolic dysfunction and alcohol. Moderate amounts of alcohol are defined as 20 to 50 g daily (140 to 350 g per week) for females and 30 to 60 g daily (210 to 420 g per week) for males [4]. This range of alcohol intake defines a spectrum between MASLD-predominant and alcohol-predominant disease.



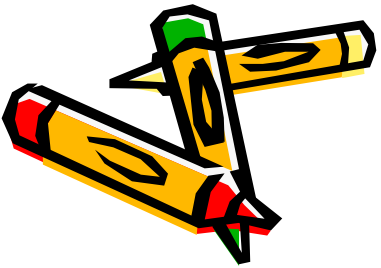
EPIDEMIOLOGY

- 30% normal population
- 70% DM
- 80% OBESE
- 50% HLP



- Liver specefic mortality 1/1000

- Overal mortality 15/1000

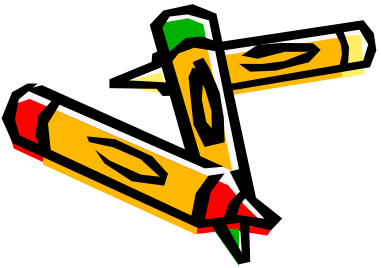


PATHOGENESIS

MASLD

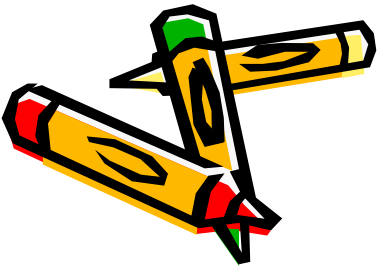
MASH

CIRRHOSIS



CLINICAL FEATURE

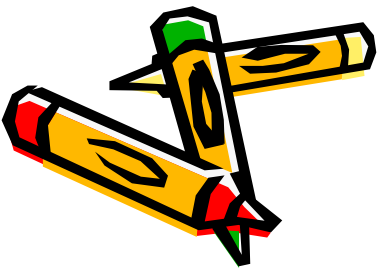
- MALASIS
- PAIN



When to suspect MASLD

— MASLD may be suspected in patients who fulfill any of the following criteria [46]:

- Liver steatosis on imaging
- Unexplained elevation in liver enzymes (alanine aminotransferase [ALT] and aspartate aminotransferase [AST])
- Two or more metabolic risk factors (eg, obesity, dyslipidemia, pre- or established type 2 diabetes mellitus, hypertension)
- First-degree relative of a patient with MASLD cirrhosis



DIAGNOSIS

SONO ·

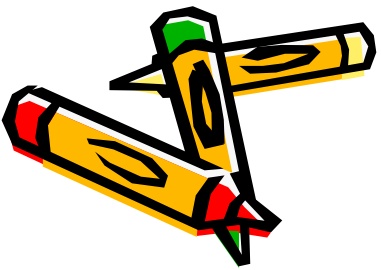
FIBROSCAN ·

MRI ·

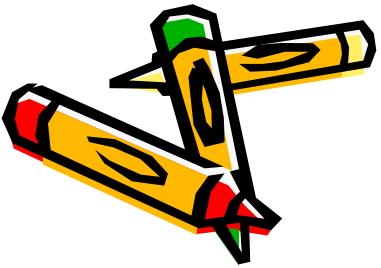
LAB

LIVER Biopsy

DIAGNOSIS BY EXCLUSION



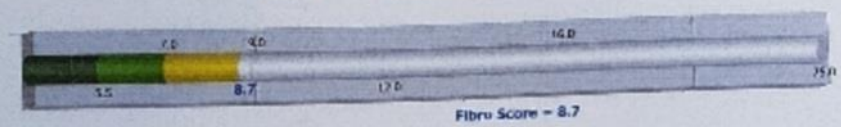
For patients with MASLD, ultrasound often shows a hyperechoic texture or a bright liver because of diffuse fatty infiltration [52]. In a meta-analysis of 49 studies including 4720 patients, the sensitivity and specificity for ultrasound detecting moderate to severe fatty liver were 85 and 94 percent, respectively, when using liver biopsy as the reference standard [53]. However, the sensitivity appears to be lower in patients with obesity [54,55]. In a study of 187 patients with Class 2 obesity undergoing bariatric surgery, hepatic steatosis was present histologically in 95 percent but was detected by ultrasound in only 49 percent of patients [54].

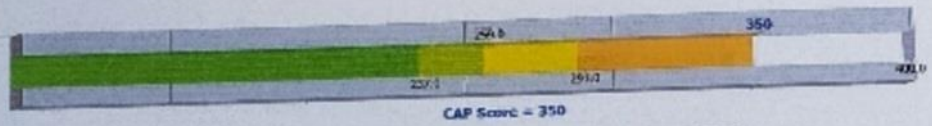


Fibroscan - CAP Report

نام و نام خانوادگی: نرگس محبی
شماره پرونده: ۲۲۶۹٤
پزشک ارجاع دهنده دکتر احدی
تاریخ: ۱٤۰۲/۱۲/۲۳

Diagnosis: None Alcohol Fatty Liver Disease





Fibroscan	CAP
Patient Score: 8.7 (kPa)	Patient Score 350 (dB/m)
Metavir Score: F2	Steatosis Percent 85%
	Steatosis Stage: S3

Dear Colleague:
Thanks for referring this patient for fibroscan test.
I performed fibroscan in different parts of his liver.The median fibrosis score of his liver is 8.7kPa, which is equal to F2 based on Metavir histological index.
The Cap score for liver steatosis is 350db/m, steatosis: 85% ,stea stage:S3
probe: M
please be advised in acute hepatitis , PHTstatus and in cardiopulmonary congestion , the result of Fibroscan may be higher than actuall fibrosis in the liver .So,correlation with other clinical and paraclinical findings is recommended.

Regards

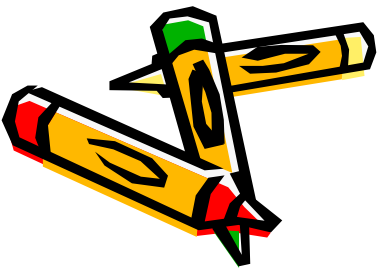
Metavir histological indexing : fibrosis calsifies on a scale of F0 to F4 ,where F0 is normal and F4 represent cirrhosis
Cap:(controled attenuation parameter) is a novel VCTE guided ultrasonic attenuation measurment for the evaluation
steatosis .

STAGING

STAGING (EVALUATING FOR FIBROSIS)

—

The goal of staging patients with MASLD is to determine the severity of fibrosis. We evaluate most patients with a noninvasive imaging study and reserve liver biopsy for those with inconclusive findings.



For initial screening, we typically use serologic testing (eg, Fibrosis [FIB]-4 index) [46,83]. The FIB-4 index predicts advanced fibrosis by combining biochemical values (platelet count, ALT, and AST) and age (calculator 1 and calculator 2) [77,84] (see 'Staging (Evaluating for fibrosis)' above):

- Patients with FIB-4 >2.67 – Patients are at high risk for advanced fibrosis and should be referred to a hepatologist.
- Patients with FIB-4 ≥ 1.3 and ≤ 2.67 – We evaluate patients with an indeterminate score with ultrasound-based transient elastography, and elastography results inform further management.
- Patients with FIB-4 <1.3 – For patients with a low-risk FIB-4 index, we reassess based on underlying risk:
  - For patients with type 2 diabetes mellitus or ≥ 2 metabolic risk factors, we repeat FIB-4 index every one to two years.
  - For patients without type 2 diabetes mellitus and <2 metabolic risk factors, we repeat FIB-4 index every two to three years.

Input:

Age	50	y
Platelets	200	1
ALT	40	U
AST	30	U

Result:

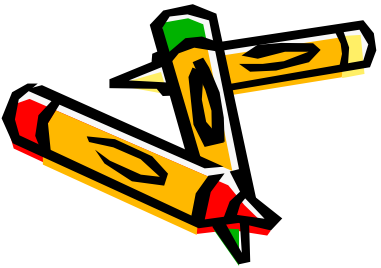
FIB4 **1.19** index

Decimal Precision: 2





Studies suggested that MRE was more accurate than ultrasound-based elastography for staging fibrosis in patients with MASLD, although use of MRE may be limited by availability and



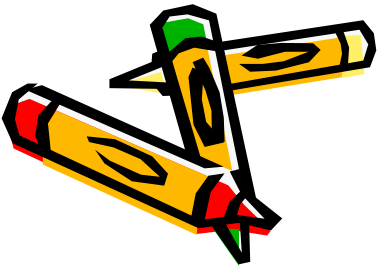
TARGETED SCREENING FOR ADVANCED FIBROSIS

—

We do not screen the general population for MASLD-related advanced fibrosis [4]. However, one issue that arises is whether to screen individuals who are at increased risk for advanced liver fibrosis because of an associated condition, such as type 2 diabetes mellitus or other

Society guidelines support screening for advanced fibrosis in the following high-risk groups [4]:

- First-degree relatives of patients with cirrhosis [79].
- Individuals with obesity and at least one obesity-related comorbidity (eg, dyslipidemia) [80]. (See "Overweight and obesity in adults: Health consequences".)
- Individuals with moderate or greater alcohol consumption (ie, moderate alcohol consumption was defined as 20 to 50 g daily for females and 30 to 60 g daily for males).
- Patients with type 2 diabetes mellitus [81,82].
- Patients with ≥2 metabolic risk



TREATMENT

RISK FACTORE

DM

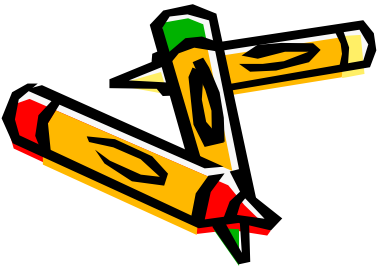
HLP

HTN

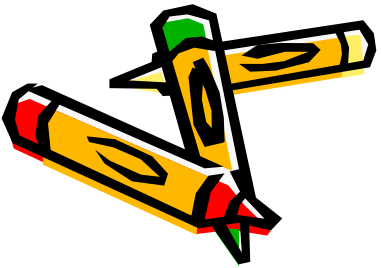
ALCHOL and other drug toxin

OBESITY

BMI WAIST CIRCUMFRENC



- MASH without cirrhosis
- MASH with cirrhosis



OBESITY

Drugs •

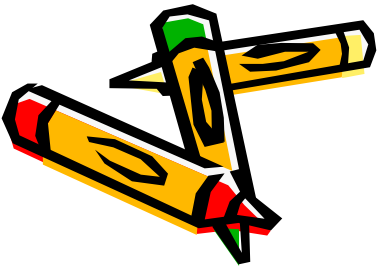
old •

new GLP1 GIP •

Semiglutide liraglutide tirzapatide

ENDOSOPIC BOTAX

SURGERY sleeve bypass



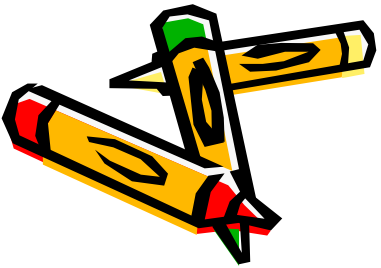
HERBAL •

PIOGLUTAZONE •

Vit E •

OTHER DM drugs

MASH TARGETED RESMITIROM



LEAN MASLD

