



Liver Potpourri

Day in Family Medicine, Sydney, Cape Breton

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Disclosures

Conflicts of Interest

Neither I, nor any immediate family members, have any financial relationship with, or interest in, any commercial enterprise connected with this presentation that may pose a conflict of interest.

Off-Label Drug Use

The material in this presentation may include discussions of unapproved or investigational uses of products or devices in Canada that will be identified throughout the presentation.



Canadian Liver Foundation
Fondation canadienne du foie

My Tasks For Today

Make you more comfortable handling (screening, initial investigation and management) of common liver problems in your practice through three cases

- a) Patient with Elevated Ferritin and Severe Steatosis on Ultrasound
- b) International Graduate Student with Right Upper Quadrant Pain
- c) Patient with Metabolic Syndrome with poorly controlled blood sugar and BMI > 32

First Case: 66-year-old Man with One Episode of Melena

Patient had FIT(-) three times in the last 5 years.

He does not take medications. He has no upper GI symptoms. There are no alarms signs

Routine CBC testing reveals Hgb 150 (no change from a year ago), MCV 105 with RDW 15, Platelet count 105, and surprisingly Ferritin 1500

Additional blood work 2 weeks later shows AST 80; ALT 50, ALP 140, GGT 48, Bilirubin 18, INR 1.3, Albumin 33, Folate and Vitamin B12 levels are normal

Patient's BMI is 23 and he does not have diabetes mellitus

Next Step(s): Please Write Down Your Answers

What additional tests (at minimum) should be ordered in this case?

What are your top three differential diagnoses?

Is there anything else that you would do?

HFE Gene Testing: Wild Type

Causes of Elevated Ferritin

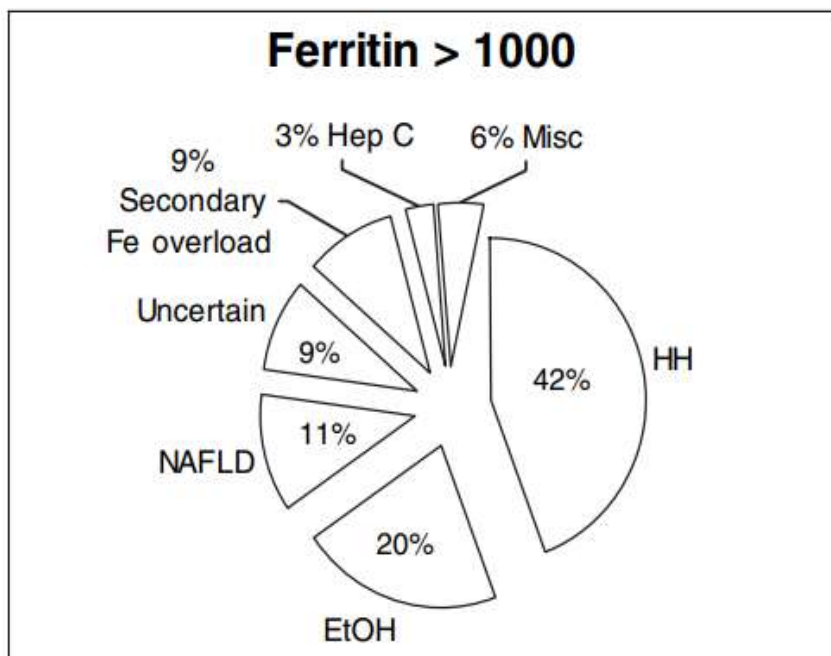


Figure 1) Diagnoses in patients (n=119) with elevated ferritin (Fe) (greater than 1000 µg/L). EtOH Alcoholic liver disease; Hep C Hepatitis C; HH HFE-related hemochromatosis; Misc Miscellaneous; NAFLD Nonalcoholic fatty liver disease

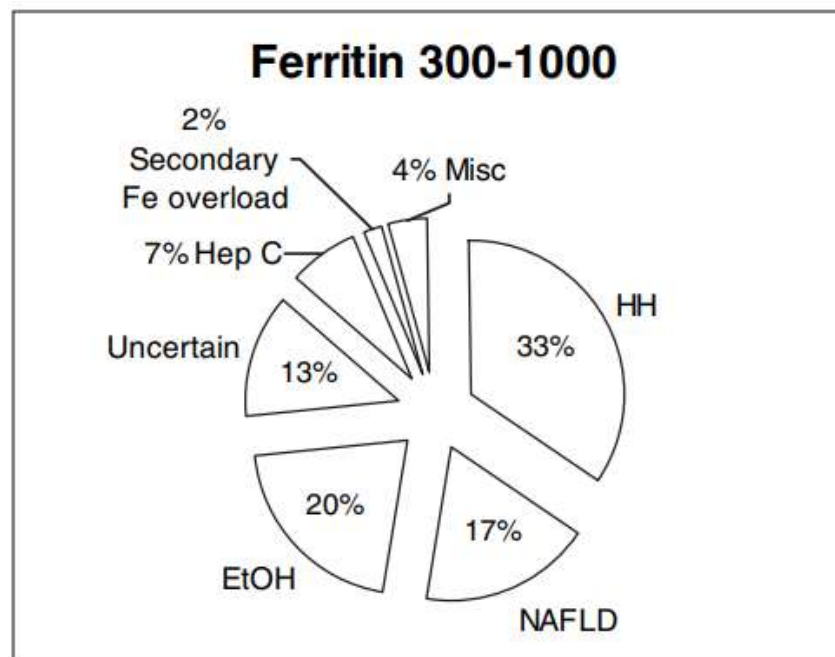


Figure 2) Diagnoses in patients (n=363) with ferritin (Fe) concentrations between 300 µg/L and 1000 µg/L. EtOH Alcoholic liver disease; Hep C Hepatitis C; HH HFE-related hemochromatosis; Misc Miscellaneous; NAFLD Nonalcoholic fatty liver disease

Wong K, Adams PC. Can J Gastroenterol 2006;20(7):467-470.

HCV-Ab Testing: Negative

HEALTH

Hepatitis C: Why Canadian doctors are recommending baby boomers get tested for the virus

BY SHERYL UBELACKER - THE CANADIAN PRESS

Posted June 4, 2018 6:51 a.m.

Updated June 4, 2018 10:56 p.m.



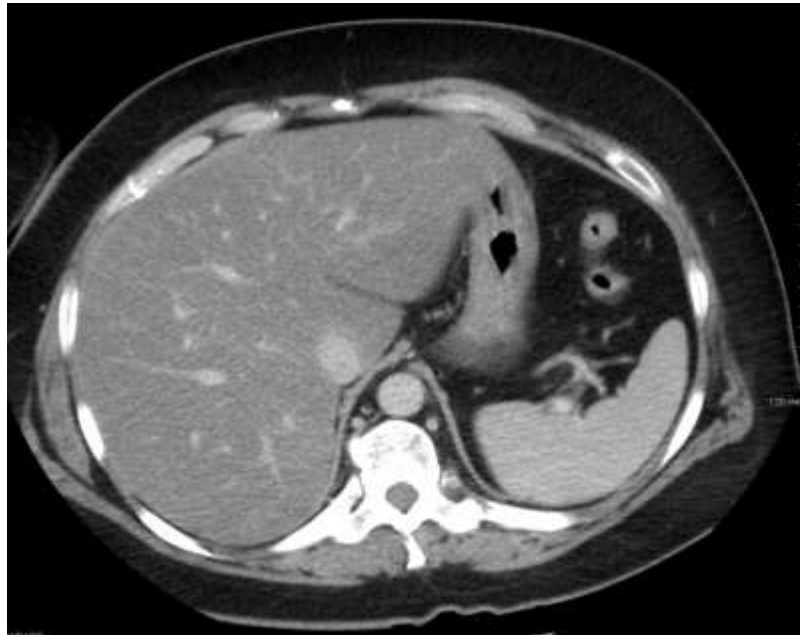
(class of recommendation: 2a; level of evidence: C).

Shah H et al. CMAJ 2018 ;190:E677-

87

Imaging Confirms Severe Steatosis

Fatty Liver on Imaging



Single Screening Question: How many times in the past year have you had X or more drinks in a day?



LRDG: Low Risk “Alcohol” Drinking Guidelines

The single-question screen was 81.8% sensitive and 79.3% specific

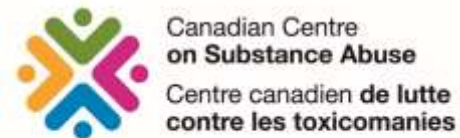
Smith et al. J Gen Intern Med 24(7):783–8

ALCOHOL SCREENING, BRIEF INTERVENTION & REFERRAL: A CLINICAL GUIDE

This resource provides an overview of a simple 3-step **alcohol screening, brief intervention and referral** process.

- 1 SCREENING AND ASSESSMENT
- 2 BRIEF INTERVENTION AND REFERRAL
- 3 FOLLOW-UP AND SUPPORT

It incorporates **Canada's Low-Risk Alcohol Drinking Guidelines** into your routine alcohol screening.



Partnership. Knowledge. Change.
Collaboration. Connaissance. Changement.

<http://www.sbir-diba.ca>

Second Case: 28-year-old Graduate Student from Africa

Presents with RUQ pain for the last few days on background of previous history of biliary colic. He reports intermittent icteric sclerae but today his physical examination is unremarkable.

He takes no medications; his BMI is 21. He does not drink alcohol or use recreational drugs.

His blood work the next day: AST 20, ALT 30, ALP 90, Total/Direct Bilirubin 42/6, Lipase 20, WBC 5, Hgb 135, MCV 80, Platelet counts 269

Next Step(s): Please Write Down Your Answers

What is the cause of elevated bilirubin?

What additional tests (at minimum) should be ordered in this case?

Is there anything else that you would do?

Test Results Two Months Later

Ceruloplasmin: normal ruling out Wilson's Disease

Ultrasound: normal appearing gallbladder without gallbladder wall thickening or gallstones.

The intrahepatic and extrahepatic bile ducts are not dilated. The liver and limited views of the pancreas are also unremarkable

His HBV, HCV and HIV testing is still pending

Table 1. Diagnostic Criteria for Functional Gallbladder Disorders

Episodes of epigastric and/or right upper quadrant pain in a patient with an intact gallbladder and normal liver chemistries and amylase/lipase that meet all the following criteria:

1. Episodes of pain lasting 30 minutes or longer
2. Recurrent symptoms occurring at varying intervals (not daily)
3. Gradual buildup of pain intensity to a steady level
4. The pain is severe enough to interrupt the patient's activities and/or lead to an emergency department visit.
5. The pain is not relieved by bowel movements.
6. The pain is not relieved by postural changes.
7. The pain is not relieved by antacids.
8. Structural diseases that could explain the patient's symptoms have been excluded.

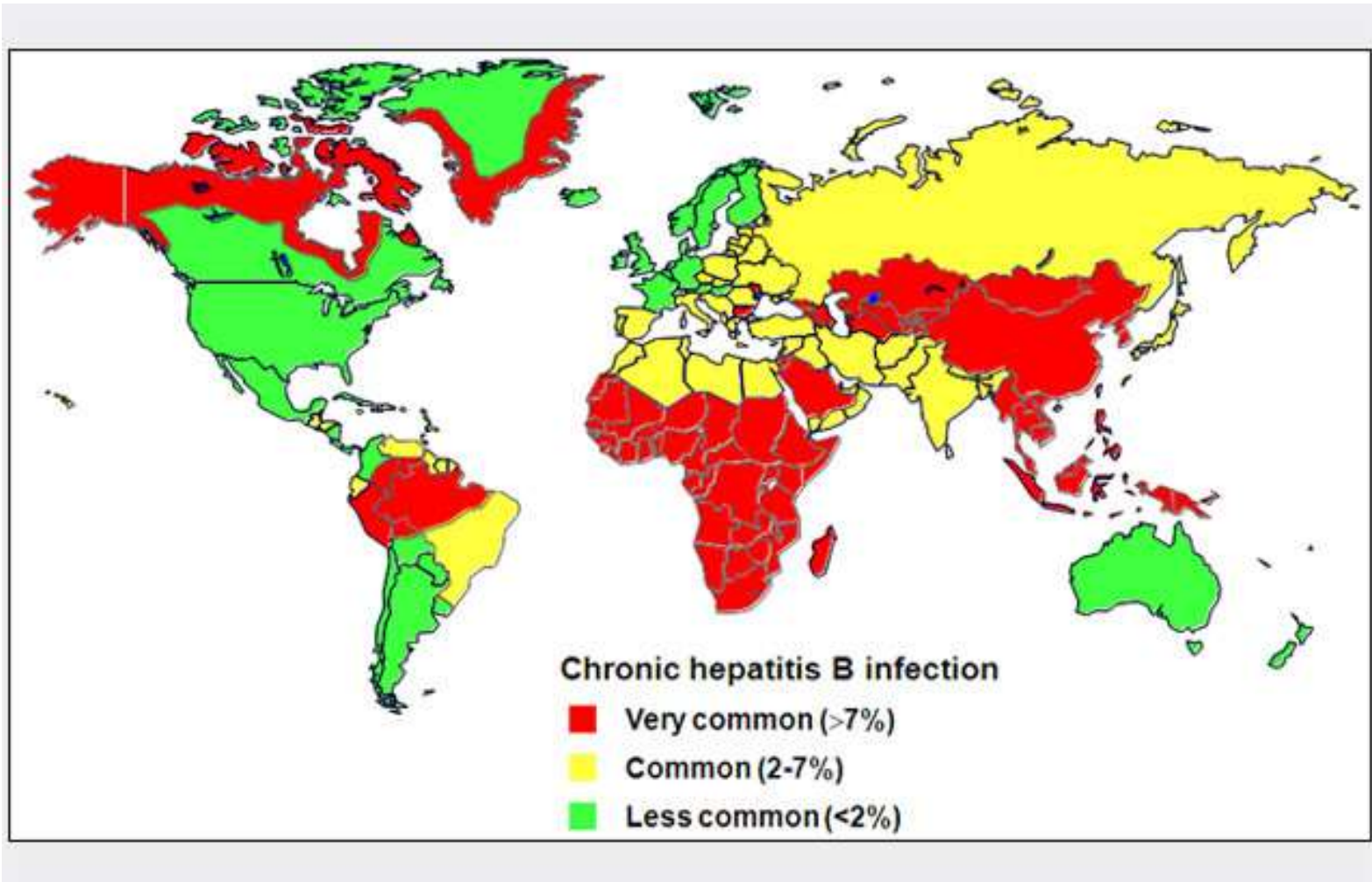
The pain might present with 1 or more of the following supportive criteria:

1. Pain associated with nausea and vomiting
2. Pain radiates to the back and/or right subscapular region.
3. Pain awakens patient from sleep in the middle of the night.

Adapted from Behar J, Corazziari E, Guelrud M, et al. Functional gallbladder and sphincter of Oddi disorders. *Gastroenterology* 2006; 130:1498–1509.

Ahmed F et al. *CLINICAL GASTROENTEROLOGY AND HEPATOLOGY* 2008;6:1198–1201

Second Case: Positive for HBsAg but Negative for HCV and HIV



Third Case: 64-year-old woman with Metabolic Syndrome

Her BMI 34 and DM2 with HgbA1c 8.8

Her current medications include Metformin 500mg po TID, Perindopril 8mg po OD, Synthroid 0.1mg po OD and Rosuvastatin 10mg po OD.

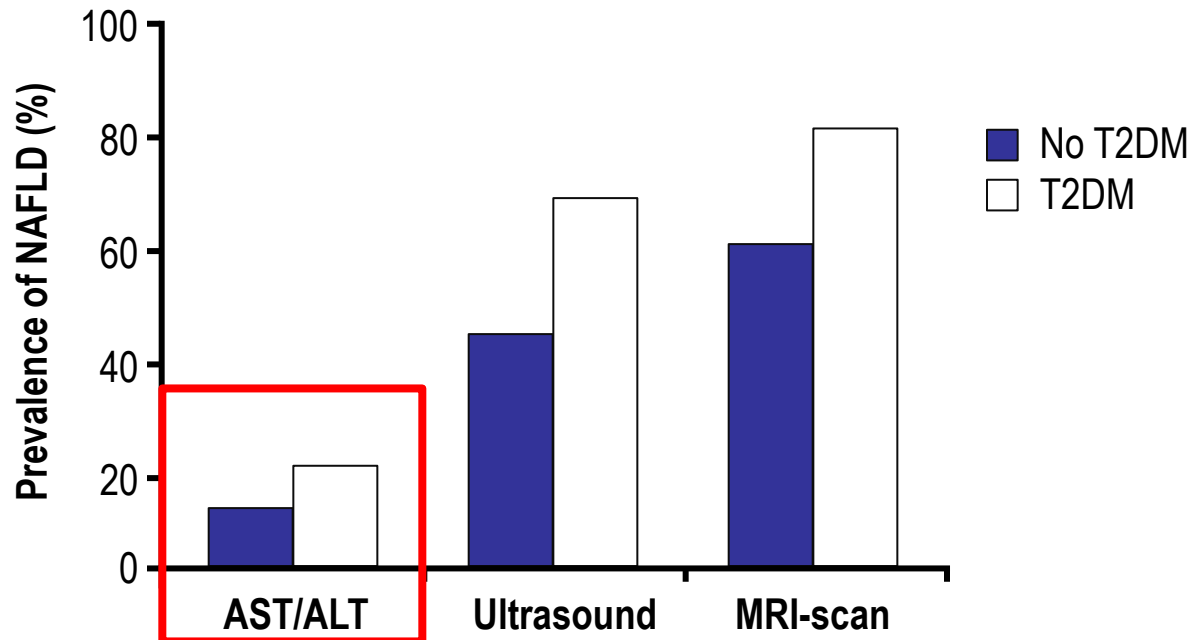
Her most recent blood work from few months ago is unremarkable: AST 35, ALT 16, ALP 90, WBC 5, Hgb 135, MCV 90, Platelet counts 165

Next Step(s): Please Write Down Your Answers

Is there anything else that you would do?

Fatty Liver in Overweight or Obese Adults With or Without Diabetes

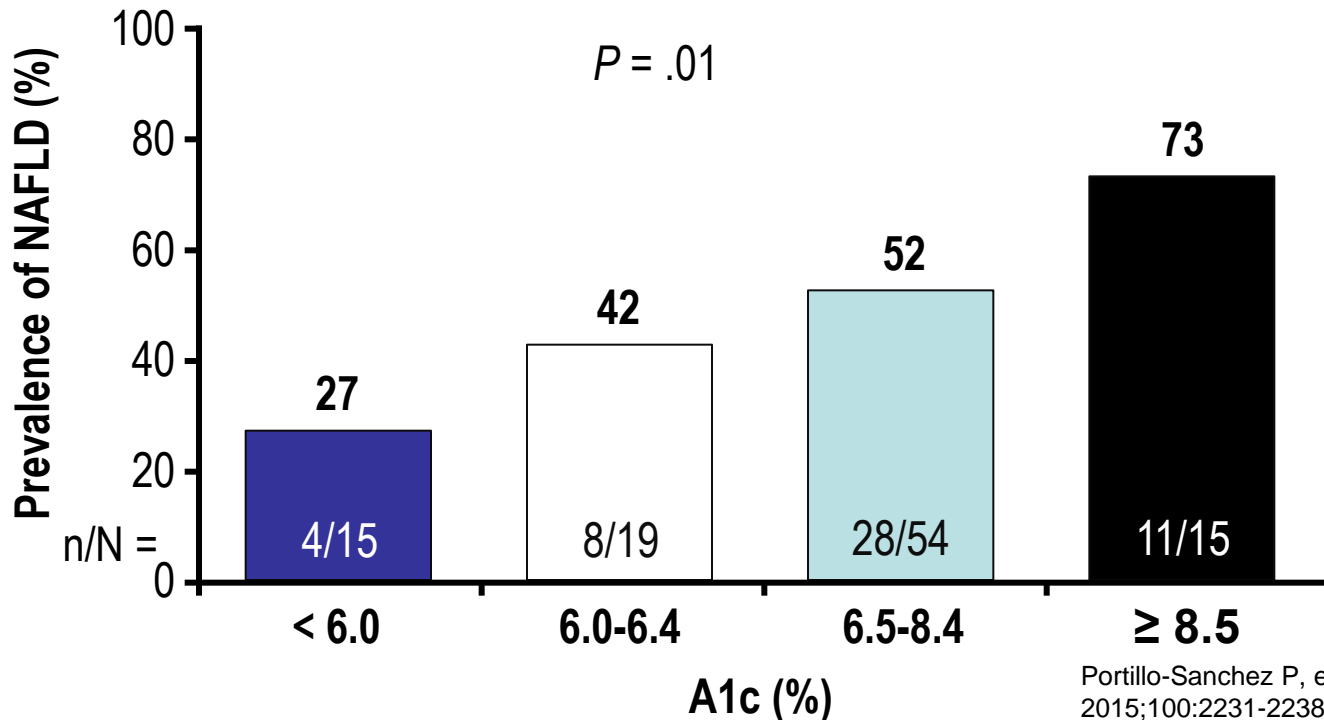
Prevalence of NALFD Based on Diagnostic Tool



Vernon G et al. *Aliment Pharmacol Ther* 2011; **34**: 274–285

Fatty Liver Increases With A1c Levels in Diabetics With Normal AST/ALT

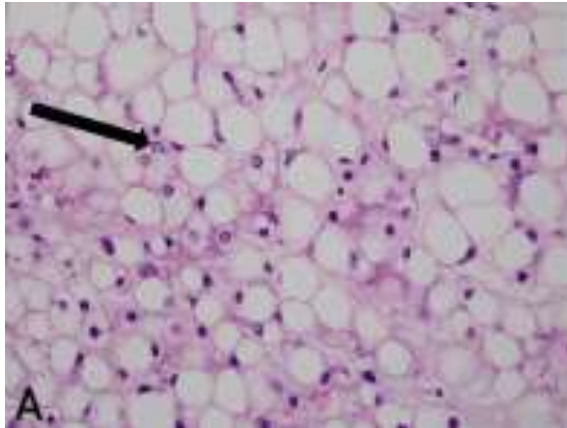
Adults (N = 103) screened by magnetic resonance and spectroscopy



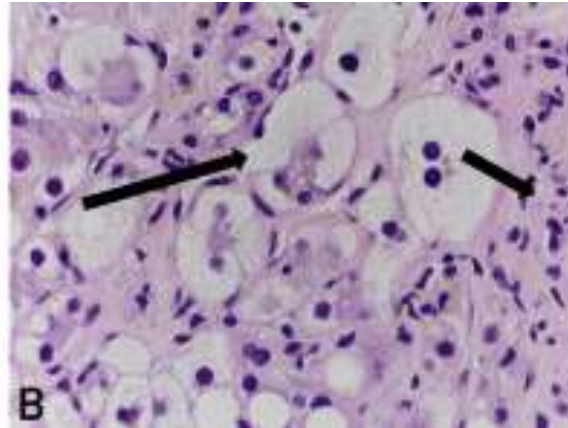
Portillo-Sanchez P, et al. J Clin Endocrinol Metab. 2015;100:2231-2238.

Many Names of Fatty Liver

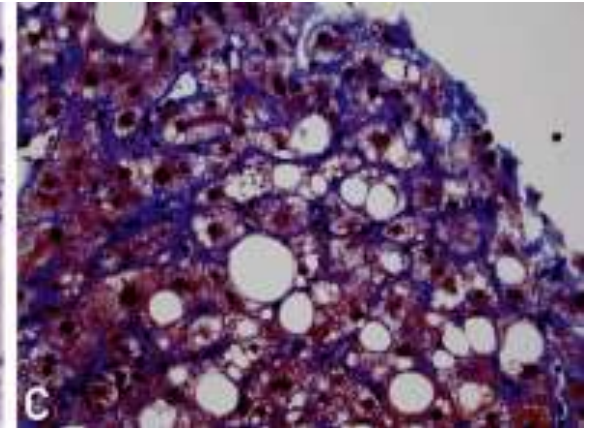
Steatosis: simple fat



Steatohepatitis: fat with inflammation



Cirrhosis: scarring of liver



Non-alcoholic fatty liver disease (NAFLD)

Non-alcoholic steatohepatitis (NASH)

Fatty liver disease

Hepatic steatosis

Steatohepatitis

Liver Disease Associated with Metabolic Syndrome

ONE MINUTE ADVICE

Fibrosis-4 (FIB-4) Calculator

Share

The Fibrosis-4 score helps to estimate the amount of scarring in the liver. Enter the required values to calculate the FIB-4 value. It will appear in the oval on the far right (highlighted in yellow).

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

FIB-4 = 3.39

Interpretation:

Using a lower cutoff value of 1.45, a FIB-4 score <1.45 had a negative predictive value of 90% for advanced fibrosis. In contrast, a FIB-4 >3.25 would have a 97% specificity and a positive predictive value of 65% for advanced fibrosis

Lifestyle Interventions for Fatty Liver Disease

Weight loss generally reduces hepatic steatosis, achieved either by hypocaloric diet alone or in conjunction with increased physical activity. **(Strength – 1, Evidence – A)**

Loss of at least 3-5% of body weight appears necessary to improve steatosis, but a greater weight loss (up to 10%) may be needed to improve necro-inflammation. **(Strength – 1, Evidence – B)**

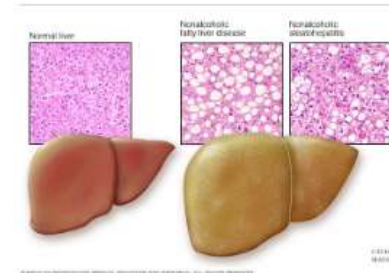
Exercise alone in adults with NAFLD may reduce hepatic steatosis but its ability to improve other aspects of liver histology remains unknown. **(Strength – 1, Evidence – B)**

EASL and AASLD Guidelines

BEST QUICK ADVICE

Fatty Liver Disease

Fat in the liver typically develops when a person consumes more fat and sugars than his or her body can handle. This is more common in people who are overweight or obese, but can also occur in adults with healthy body weights. If that fat builds up to more than 5% of the liver, then the liver is considered to be a fatty liver. Although having this condition may not cause any immediate harm, there is a concern that the extra fat in the liver might make the liver vulnerable to further injury such as inflammation and scarring.



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What is Non-Alcoholic Fatty Liver Disease (NAFLD)?

Non-alcoholic fatty liver disease (NAFLD) is a liver disease affecting people who drink little to no alcohol. As the name implies, the main characteristics of NAFLD is too much fat stored in liver cells. NAFLD is the most common liver disease in Canada affecting about 20% of Canadians.

<https://www.liver.ca/patients-caregivers/liver-diseases/fatty-liver-disease/>

What We Did Today

I hope I made you feel more comfortable handling (screening, initial investigation and management) of common liver problems in your practice through three cases

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- c) Patient with Metabolic Syndrome with poorly controlled blood sugar and BMI > 30

Questions



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