# Cirrhosis Management for the Family Physician

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## Cirrhosis Management for the Family Physician

- I have no conflict of interest to declare

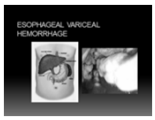
## Objectives

- Assessment of significant hepatic fibrosis in patients with chronic liver diseases
- Understand the natural history of cirrhosis and complication development
- Develop a management routine for your patients with cirrhosis

## Natural History of Chronic Liver Disease

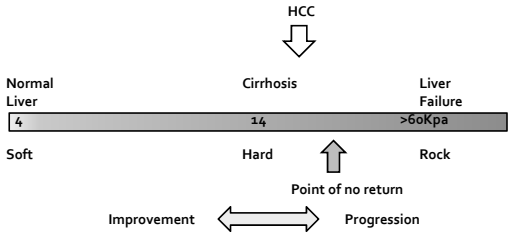
- Chronic injury
- Fibrosis progression
- Cirrhosis
  - Portal hypertension and HCC
- Complications from portal hypertension
- Liver failure

Can be asymptomatic and difficult to identify





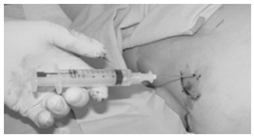
## Natural History of Chronic liver Diseases

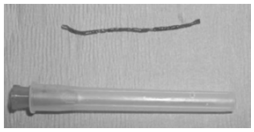



## Clinical Assessment of Fibrosis/Cirrhosis

| Biopsy | F1 | F2 | F3 | F4 | Decompensation |
|---|---|---|---|---|---|
| Non invasive tests | | | | | |
| Clinical symptoms | None/min. | | Fatigue | Varices | EVH/Ascites/HE |
| Blood tests | | | | ⇧ | |
| Imaging studies | | | | ⇧ Abn | ⇧ Cirrhosis |
| MELD | | | | | |

## Liver Biopsy





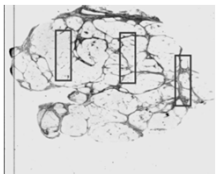
Confirming diagnosis

Staging of liver

Assessing for coexisting liver diseases

## Liver Biopsy

- Invasive procedure with a small risk of morbidity and mortality (1/500 to 1/1000)
  - Hemorrhage
- Sampling error
  - Examine 1/50,000 portion of liver
  - Variable levels of fibrosis throughout the liver (discordance rate ~30%)
  - Inadequate sample can be misleading



## Indirect Methods to Assess Liver Fibrosis

- Blood tests
  - Planel of blood tests (routine and special blood tests)
  - A special calculator to determine the fibrosis score
  - Variable sensitivity, specificity, positive predictive value and negative predictive value
- Transient elastography
  - Measuring liver stiffness

## Indirect Tests for Liver Fibrosis

- AST/ALT ratio greater than 1
- AST to Platelet ratio index (APRI)
- Fibrotest (alpha 2 macroglobulin, haptoglobin, gamma globulin, apolipoprotein A1, GGT and bilirubin)
- PGA Index (PT, GGT and apolipoprotein A1)
- FibroIndex (AST, Plt, GGT)
- FIB-4 Index (Plt, ALT, AST)
- Fibrometer (Plt, PT, AST, alfa-2 macroglobulin, hyaluronate, urea and age)
- Hepascore (bilirubin, GGT, hyaluronic acid, alpha 2 macroglobulin, age, gender)
- ActiTest (Fibrotest, ALT)

## The AST-to-Platelet Ratio Index (APRI)

- (AST/ULN)/platelets x 100
  - 0.5 or less - no fibrosis or just a little
  - 1.5 or above - probably have cirrhosis
- APRI scores between 0.5 and 1.5 are related to progressive fibrosis (Metavir F1-to-F4)

## Fibrotest

- Alpha 2 Macroglobulin
- Haptoglobin
- GGT
- Age
- Bilirubin
- Apo A1
- Gender

$$z = 4.467 \times \log_{10}[\alpha 2macroglobulin(g/L)] - 1.357 \times \log_{10}[Haptoglobin(g/L)] + 1.017 \times \log_{10}[GGT(IU/L)] + 0.0281 \times [Age(years)] + 1.737 \times \log_{10}[Bilirubin(\mu mol/L)] - 1.184 \times [ApoA1(g/L)] + 0.301 \times Sex(female = 0, male = 1) - 5.54$$

**FibroTest tests and derivatives are patented since 2001 by APHP (Assistance publique - Hôpitaux de Paris), the Parisian public hospital system. In the US, FibroTest is marketed as FibroSure (a LabCorp trademark). BioPredictive is the company licensed by APHP to promote and operate the tests.**

## Fibrotest

| FibroTest | METAVIR | Knodell | Ishak |
|---|---|---|---|
| 0.75-1.00 | F4 | F4 | F6 |
| 0.73-0.74 | F3-F4 | F3-F4 | F5 |
| 0.59-0.72 | F3 | F3 | F4 |
| 0.49-0.58 | F2 | F1-F3 | F3 |
| 0.32-0.48 | F1-F2 | F1-F3 | F2-F3 |
| 0.28-0.31 | F1 | F1 | F2 |
| 0.22-0.27 | F0-F1 | F0-F1 | F1 |
| 0.00-0.21 | F0 | F0 | F0 |

## Transient Elastography

- US - Acoustic Radiation Force Impulse Imaging (ARFI)
- Fibroscan
- MR Elastography

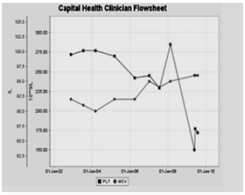
No risk

Reducing sampling error by examining a larger mass of liver tissue

Can be repeated as frequently as one wishes

## Cirrhosis

- AST tends to be higher than ALT
- Ferritin is elevated, iron saturation index continues to rise
- Patients would have high IgG and MCV
- More severe portal hypertension – WBC and Plt count will be low.



## Assessment of Fibrosis

- Liver biopsy
- Non-invasive tests
- Transient Elastography

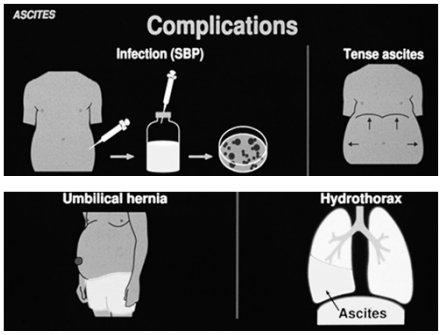
Complementary Information

## Complications of Cirrhosis

- Ascites
- Variceal Hemorrhage
- Hepatorenal Syndrome
- Hepatic Encephalopathy
- Nutrition deficiency
- Hepatoma
- Cardiopulmonary complications

## Management of Ascites

- Dietary Na restriction (<88mmol/day)
- Diuretic therapy (always use combination ~ furosemide and spironolactone)
- Avoid renal dysfunction
- Large volume paracentesis
- Watch out for SBP
- TIPS
- Liver transplantation

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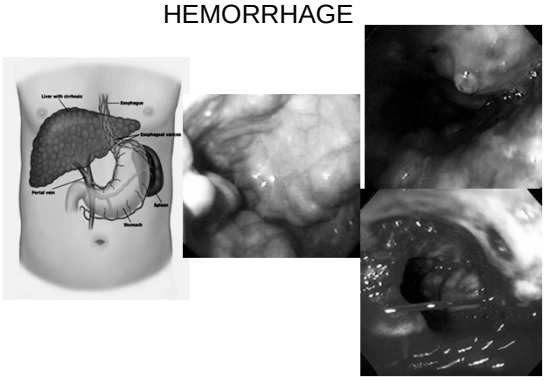
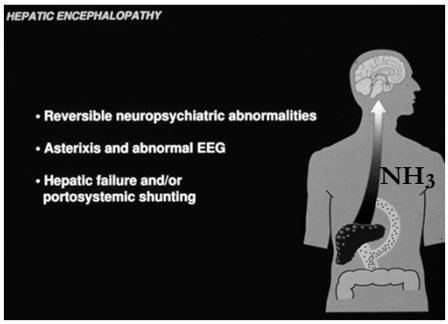
## ESOPHAGEAL VARICEAL HEMORRHAGE



## Varices

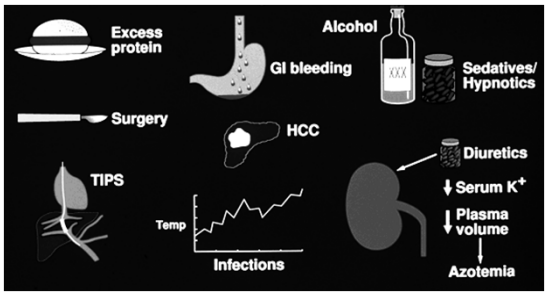
- Gastroscopy is recommended when the diagnosis of cirrhosis is made
- Nonselective -blockers should be used for the prevention of first variceal hemorrhage (primary prophylaxis)
- Patients with cirrhosis who survive an episode of active variceal hemorrhage should receive therapy to prevent recurrence of variceal hemorrhage (secondary prophylaxis)
- Combination of nonselective -blockers plus EVL is the best option for secondary prophylaxis of variceal hemorrhage




## Treatment of Encephalopathy

- Look for cause(s)
- Avoid precipitants
- Lactulose
- Antibiotics
- Rifaximin
- probiotics

## Precipitants of Encephalopathy

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## HCC

- It tends to be asymptomatic until the tumor is in an advanced stage.
- Early detection of HCC is essential in improving the prognosis.
- **80% of patients with HCC have underlying cirrhosis**
- Surveillance = repeated application of screening tests (imaging study every 6 months ~ US/MRI)
- The goal of surveillance is to decrease the HCC mortality.

## Approach for Patients with Cirrhosis

- Identify liver disease and cirrhosis early
- Treat the underlying liver disease to reverse cirrhosis or prevent progression if possible
- If disease cannot be controlled, monitor and treat cirrhotic complications
- Survey for liver cancer every 6 months
- Identify patients for liver transplantation early (Child-Pugh B and MELD > 15)