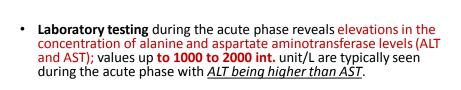


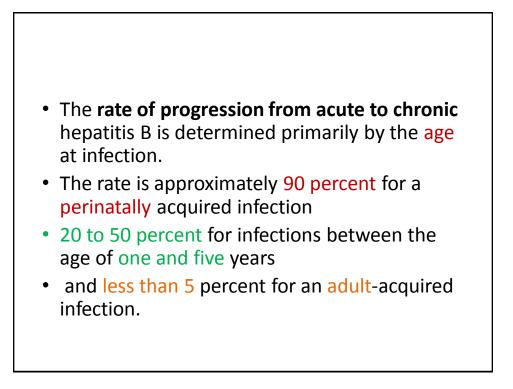
ACUTE HEPATITIS

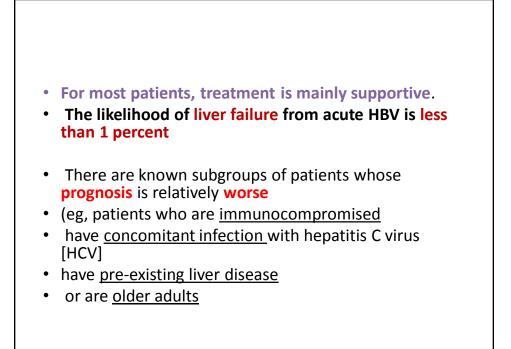
- Approximately 70 percent of patients with acute hepatitis B have subclinical or anicteric hepatitis.
- while 30 percent develop icteric hepatitis.
- The disease may be more severe in patients coinfected with <u>other hepatitis</u> viruses or with <u>underlying liver disease</u>.
- Fulminant hepatic failure is unusual, occurring in approximately 0.1 to 0.5 percent of patients.

- The incubation period lasts one to four months.
- A serum sickness-like syndrome may develop during the prodromal period, followed by constitutional symptoms, anorexia, nausea, jaundice, and right upper quadrant discomfort.
- The symptoms and jaundice generally disappear after one to three months, <u>but some patients</u> <u>have prolonged fatigue even after normalization</u> of serum aminotransferase concentrations.



- The serum **bilirubin** concentration may <u>be normal in patients with</u> <u>anicteric hepatitis</u>.
- The prothrombin time is the best indicator of prognosis.
- In patients who recover, the normalization of serum aminotransferases usually occurs within one to four months.
- A persistent elevation of serum ALT for more than six months indicates a progression to chronic hepatitis.

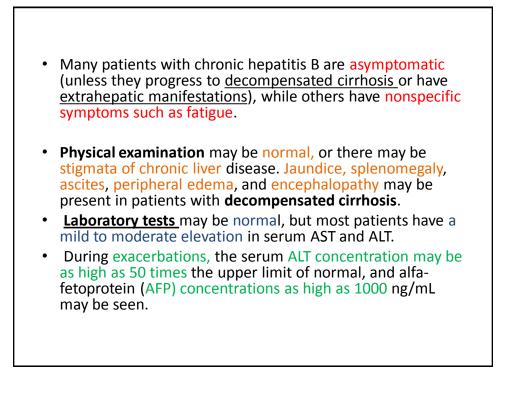




CHRONIC HEPATITIS B

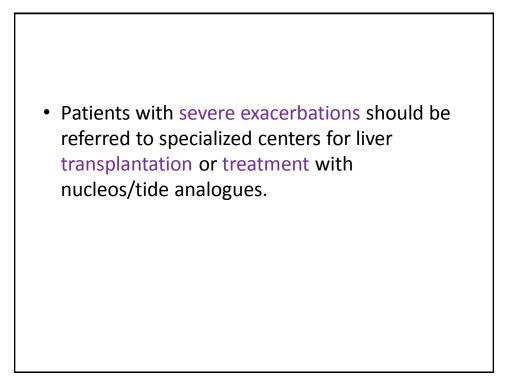
• The diagnosis of chronic HBV infection is :

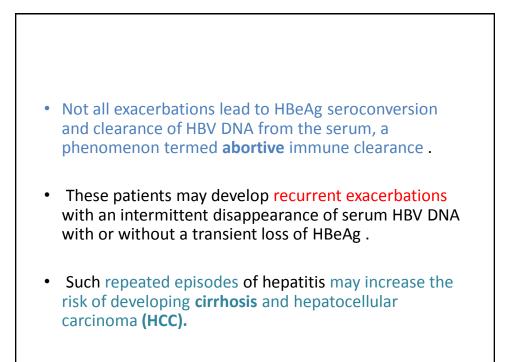
(HBsAg) for greater than six months



A progression to cirrhosis is suspected when :

- there is evidence of hypersplenism (decreased white blood cell and platelet counts) or
- impaired hepatic synthetic function (hypoalbuminemia, prolonged prothrombin time, hyperbilirubinemia).



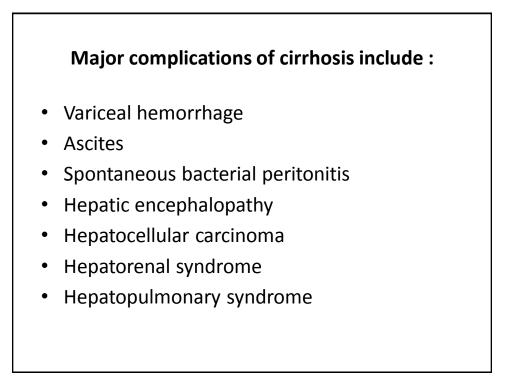


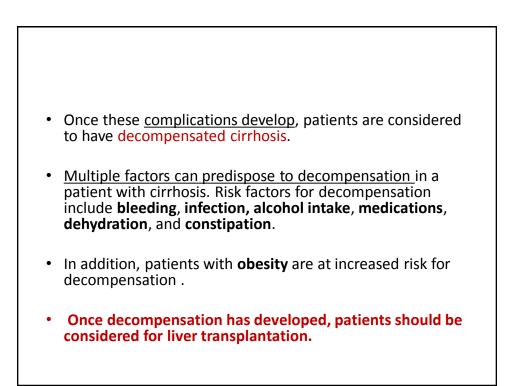
SEQUELAE AND PROGNOSIS OF CHRONIC HBV INFECTION

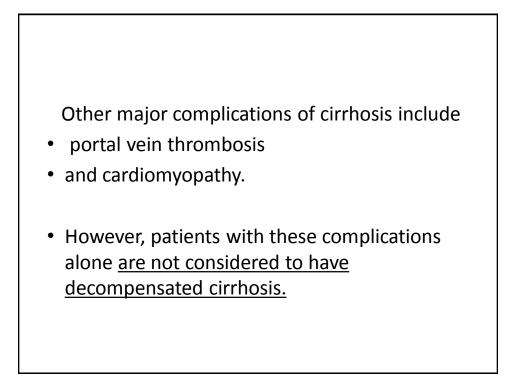
- The sequelae of chronic HBV infection vary from an inactive carrier state to the development of cirrhosis, hepatic decompensation, hepatocellular carcinoma (HCC), extrahepatic manifestations, and death.
- majority remain asymptomatic with a very low risk of cirrhosis or HCC .

complications of cirrhosis

- Cirrhosis is generally considered to be irreversible in its <u>advanced stages</u>, at which point the only option may be liver <u>transplantation</u>.
- In earlier stages, specific treatments aimed at the underlying cause of liver disease may improve or even reverse cirrhosis.







Complications of portal hypertension

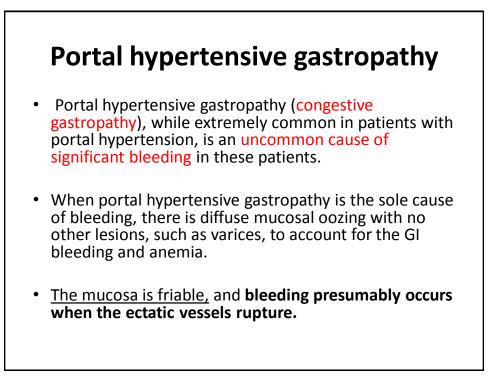
- Many of the complications of cirrhosis are the result of portal hypertension (increased pressure within the portal venous system).
- This can lead to the formation of venous collaterals (varices) as well as circulatory, vascular, functional, and biochemical abnormalities that contribute to the pathogenesis of ascites and other complications.

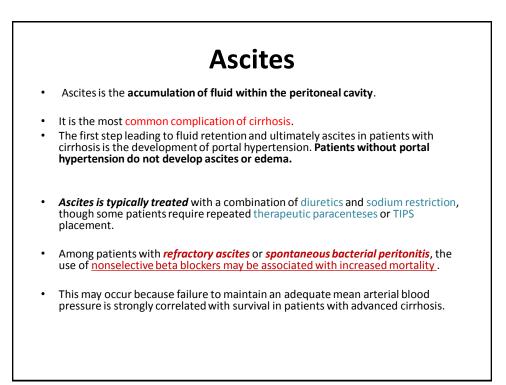
Complications of portal hypertension include:

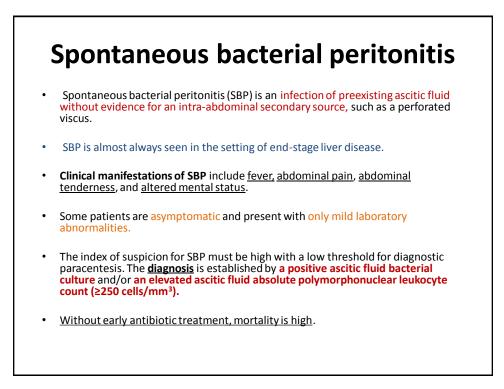
- • Ascites
- Hepatic encephalopathy
- Variceal hemorrhage
- Spontaneous bacterial peritonitis
- Hepatorenal syndrome
- • Portal hypertensive gastropathy
- Hepatic hydrothorax
- Hepatopulmonary syndrome
- • Portopulmonary hypertension
- Cirrhotic cardiomyopathy

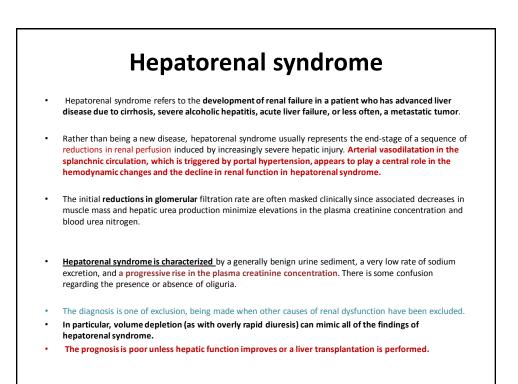


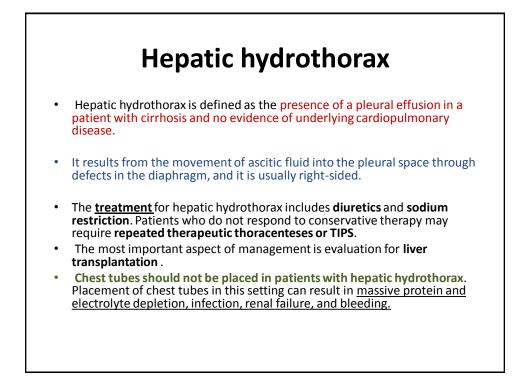
- Patients with variceal hemorrhage typically present with hematemesis and/or melena. It is typically treated with endoscopic variceal <u>band</u> <u>ligation</u>.
- Other treatments include endoscopic <u>sclerotherapy</u> and placement of a transjugular intrahepatic portosystemic shunt <u>(TIPS).</u>
- Variceal hemorrhage is associated with high mortality rates.

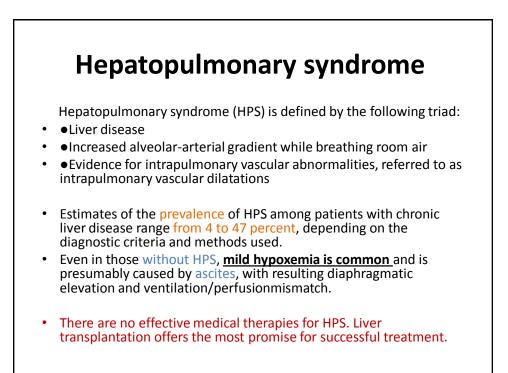


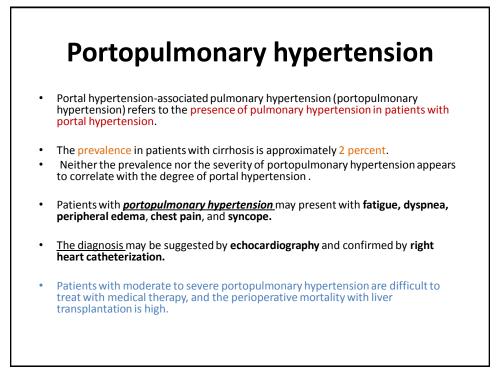






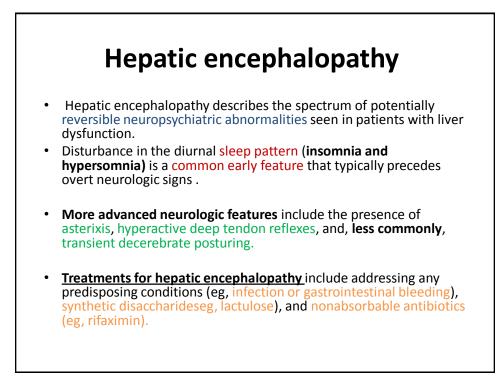






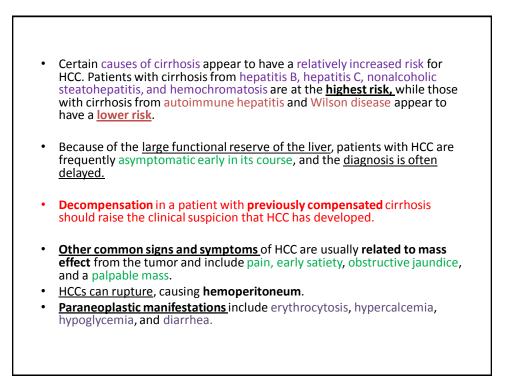
Cirrhotic cardiomyopathy

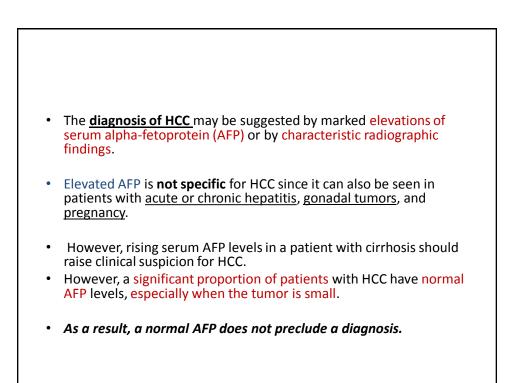
- Up to 50 percent of patients with advanced cirrhosis have features of cardiac dysfunction.
- The term "cirrhotic cardiomyopathy" has been used to describe such patients, who are characterized as having normal to increased cardiac output and contractility at rest, but a blunted response to pharmacologic, physiologic, or pathologic stress.
- Cardiomyopathy can occur from any cause of cirrhosis, although patients with alcoholism or hemochromatosis may have additional contributing causes to cardiac dysfunction.

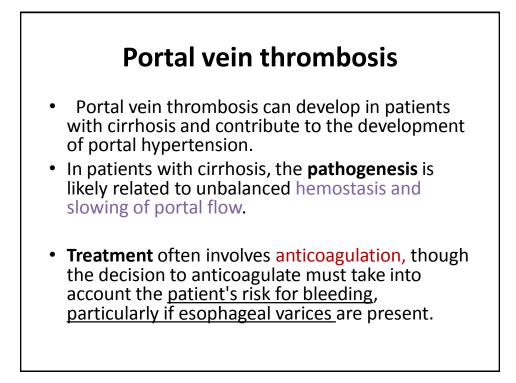


Hepatocellular carcinoma

- Patients with **cirrhosis** have a markedly increased risk of developing hepatocellular carcinoma (HCC).
- Patients with most forms of chronic hepatitis are not at an increased risk until cirrhosis develops. Exceptions to this rule are patients with chronic hepatitis B virus infection, who can develop HCC in the absence of cirrhosis.









- The major goals of managing patients with cirrhosis include:
- • Slowing or reversing the progression of liver disease
- Preventing superimposed insults to the liver
- Identifying medications that require dose adjustments or should be avoided entirely
- Managing symptoms and laboratory abnormalities
- • Preventing, identifying, and treating the complications of cirrhosis
- • Determining the appropriateness and optimal timing for liver transplantation

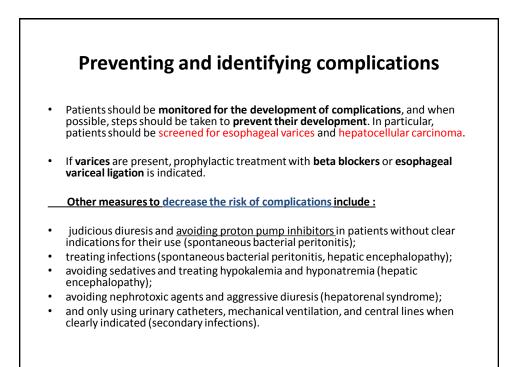
Slowing or reversing the progression of liver disease

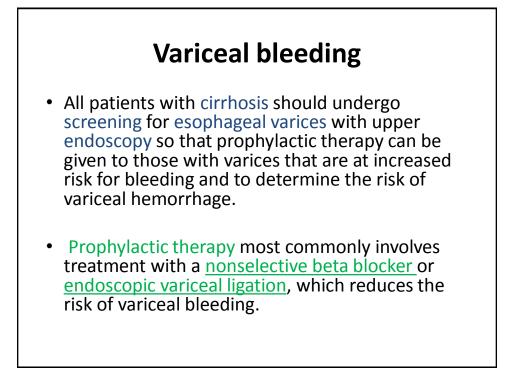
- Although cirrhosis is generally considered to be irreversible in its advanced stages, the exact point at which it becomes irreversible is unclear.
- Some chronic liver diseases respond to treatment even when the liver disease has progressed to cirrhosis.
- Thus, specific therapies directed against the underlying cause of the cirrhosis should be instituted.

As examples: Patients with hepatitis C and advanced fibrosis or cirrhosis who achieve a sustained virologic response (SVR) with antiviral treatment have a lower risk of liver-related mortality compared with patients who do not achieve an SVR. Abstinence from alcohol substantially improves survival in alcoholic cirrhosis. Successful treatment of chronic viral hepatitis can improve long-term outcomes and may affect fibrosis. In a study of 91 patients with chronic hepatitis C and significant fibrosis based on liver elastography, patients who achieved a sustained virologic response had a significant decrease in liver stiffness (and thus presumably fibrosis) 24 weeks after the end of treatment.

Preventing superimposed insults to the liver

- <u>Vaccinations</u> Vaccination against hepatitis A and B for those who are not already immune can help prevent superimposed insults to the liver. Other vaccinations, such a yearly influenza vaccination, are also recommended.
- <u>Avoidance of hepatotoxins</u> Patients with cirrhosis should avoid medications, supplements, and other substances that are commonly associated with liver injury. This includes abused substances, such as alcohol, over-the-counter medications (such as nonsteroidal antiinflammatory drugs), prescribed drugs with hepatotoxic side effects, and certain herbal remedies.
- <u>Medication adjustments</u> Patients with cirrhosis are at increased risk of adverse events with many medications because of impaired hepatic metabolism or renal excretion. *Many medications require dose adjustments or should be avoided entirely.*





Hepatocellular carcinoma

• Patients with cirrhosis should undergo surveillance with ultrasonography every six months.

Spontaneous bacterial peritonitis

- The risk of spontaneous bacterial peritonitis (SBP) can be reduced by efforts to diurese patients since diuresis concentrates ascitic fluid, thereby raising ascitic fluid opsonic activity.
- Early recognition and aggressive treatment of localized infections (eg, cystitis, cellulitis) can also help to prevent bacteremia and SBP.
- Proton pump inhibitor use has been associated with an increased risk of SBP, so proton pump inhibitors should only be given to patients who have clear indications for their use.
- Finally, prophylactic antibiotics aimed at decontaminating the gut have a role in specific clinical settings.

Hepatic encephalopathy

- Patients with cirrhosis should be evaluated regularly for hepatic encephalopathy, the <u>earliest</u> <u>features of which can be subtle.</u>
- Events that can precipitate hepatic encephalopathy include the development of variceal bleeding, infection (such as SBP), the administration of sedatives, hypokalemia, and hyponatremia, all of which should be corrected/avoided whenever possible.

Portal vein thrombosis

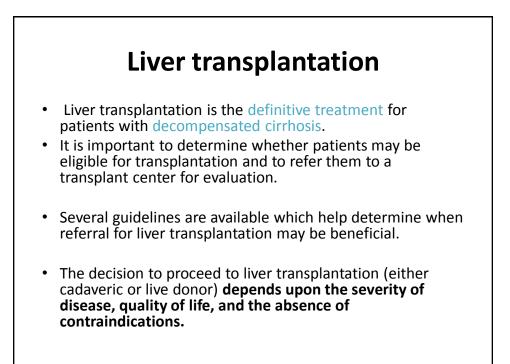
- Enoxaparin may be effective for preventing portal vein thrombosis (PVT) in patients with cirrhosis, though it is not used routinely.
- If it is to be used, we suggest eradication of varices (if present) prior to initiation of anticoagulation when possible.

Hepatorenal syndrome

 Nephrotoxic agents (such as aminoglycosides) and vigorous diuresis should be avoided in patients with cirrhosis since they can precipitate renal failure.

Secondary infections

- Patients with **cirrhosis who are hospitalized** often **acquire infections** while in the hospital. Factors that have been associated with hospital-acquired econdary infections in patients with cirrhosis include the use of urinary catheters, mechanical ventilation, and the placement of central lines.
- Many of these interventions are performed routinely (such as placement of urinary catheters to measure urine output).
- However, <u>avoiding these interventions unless they are absolutely</u> <u>necessary</u> may decrease the risk of acquiring an infection while in the hospital, and it is our practice to only use these interventions when clearly indicated.



PROGNOSIS

- The prognosis of cirrhosis is highly **variable** since it is influenced by a number of factors, including etiology, severity, presence of complications, and comorbid diseases.
- Once decompensation occurs (eg, the patient develops variceal bleeding, hepatic encephalopathy, or spontaneous bacterial peritonitis), mortality rates are high.

- <u>Compensated cirrhosis</u> Patients with cirrhosis who have not developed major complications are classified as having compensated cirrhosis.
- The *median survival* of patients with compensated cirrhosis is >12 years.
- Patients with varices but who have not developed variceal bleeding are considered to have compensated cirrhosis, though their prognosis is worse than that of patients who have compensated cirrhosis without varices .
- <u>Decompensated cirrhosis</u> Patients who have developed complications of cirrhosis, such as variceal hemorrhage, ascites, spontaneous bacterial peritonitis, hepatocellular carcinoma, hepatorenal syndrome, or hepatopulmonary syndrome, are considered to have decompensated cirrhosis and have a worse prognosis than those with compensated cirrhosis.
- *median survival* was ≤6 months in patients with decompensated cirrhosis and a <u>Child-Pugh score ≥12</u> or a Model for End-stage Liver Disease
- <u>(MELD) score ≥21</u>.