Basic facts about the liver

Your liver, the largest organ in the body, weighs about three pounds and is roughly the size of a football. It lies in the upper right side of your abdomen, situated mostly under the lower ribs. The normal liver is soft and smooth and is connected to the small intestine by the bile duct, which carries bile formed in the liver to the intestines.

It is no wonder that liver disease can cause widespread disruption of body function. While many liver diseases can occur, one of the most important problems is cirrhosis.

What is cirrhosis?

Cirrhosis is a term that refers to a consequence of chronic liver diseases in which normal liver cells are damaged and replaced by scar tissue, decreasing the amount of normal liver tissue. The distortion of the normal liver structure by the scar tissue interferes with the flow of blood through the liver. It also hardens the function of the liver, which, with the loss of normal liver tissue, leads to failure of the liver to perform some of its critically important functions.

Wilson's disease - abnormal accumulation of copper in the liver and other organs due to the decreased excretion of copper from the liver.
alpha-antitrypsin deficiency - inherited absence of α1-antitrypsin enzyme - a liver enzyme in plasma that keeps other enzymes within the liver, preventing them from breaking down the liver's own tissues.

Glycogen storage diseases - inability to properly utilize sugars

autoimmune hepatitis - progressive inflammation of the liver associated with an abnormality of the body's immune system

Prolonged exposure to environmental toxins

Some forms of heart disease (cardiac cirrhosis)

Schistosomiasis (parasitic infection)

Can the condition responsible for cirrhosis be identified?

Cirrhosis can be identified by certain factors:

In alcoholic cirrhosis

• History of regular and excessive alcoholic intake
• Physical and behavioral changes
• Examination of liver tissue obtained by needle biopsy under local anaesthesia

In active viral hepatitis infection

• Blood tests
• Liver biopsy

What causes cirrhosis?

There are a number of conditions that can lead to cirrhosis:

• Excessive intake of alcohol (most common)
• Chronic viral hepatitis, types B, C, and D
• Primary biliary cirrhosis - an autoimmune liver disease primarily affecting women
• Primary sclerosing cholangitis - a disease of the bile ducts, most often seen in patients with colitis
• Inherited or congenital diseases: hemochromatosis - abnormal accumulation of iron in the liver and other organs due to the decreased excretion of iron from the liver.

While almost everyone who drinks excessive amounts of alcohol sustain some liver damage, it does not necessarily develop into cirrhosis. In those individuals who drink one half to one pint (8 to 16 ounces) of hard liquor per day (or the equivalent in other alcoholic drinks), for 15 years or more, about one-third develop cirrhosis. Another third develop fatty livers, while the remainder have only minor liver problems.

In general, the more you drink, the greater the frequency and regularity of excessive intake, the more likely that cirrhosis will result. A poor diet, long considered to be the main factor in the development of cirrhosis in the alcoholic, is probably only a contributing factor. Alcohol itself, in large amounts, is a poison that can cause cirrhosis.

What is cirrhosis?

Cirrhosis is a term that refers to a consequence of chronic liver diseases in which normal liver cells are damaged and replaced by scar tissue, decreasing the amount of normal liver tissue. The distortion of the normal liver structure by the scar tissue interferes with the flow of blood through the liver. It also hardens the function of the liver, which, with the loss of normal liver tissue, leads to failure of the liver to perform some of its critically important functions.

Wilson's disease - abnormal accumulation of copper in the liver and other organs due to the decreased excretion of copper from the liver. alpha-antitrypsin deficiency - inherited absence of α1-antitrypsin enzyme - a liver enzyme in plasma that keeps other enzymes within the liver, preventing them from breaking down the liver's own tissues.

Glycogen storage diseases - inability to properly utilize sugars

autoimmune hepatitis - progressive inflammation of the liver associated with an abnormality of the body's immune system

Prolonged exposure to environmental toxins

Some forms of heart disease (cardiac cirrhosis)

Schistosomiasis (parasitic infection)

Can the condition responsible for cirrhosis be identified?

Cirrhosis can be identified by certain factors:

In alcoholic cirrhosis

• History of regular and excessive alcoholic intake
• Physical and behavioral changes
• Examination of liver tissue obtained by needle biopsy under local anaesthesia

In active viral hepatitis infection

• Blood tests
• Liver biopsy

What causes cirrhosis?

There are a number of conditions that can lead to cirrhosis:

• Excessive intake of alcohol (most common)
• Chronic viral hepatitis, types B, C, and D
• Primary biliary cirrhosis - an autoimmune liver disease primarily affecting women
• Primary sclerosing cholangitis - a disease of the bile ducts, most often seen in patients with colitis
• Inherited or congenital diseases: hemochromatosis - abnormal accumulation of iron in the liver and other organs due to the decreased excretion of iron from the liver.

While almost everyone who drinks excessive amounts of alcohol sustain some liver damage, it does not necessarily develop into cirrhosis. In those individuals who drink one half to one pint (8 to 16 ounces) of hard liquor per day (or the equivalent in other alcoholic drinks), for 15 years or more, about one-third develop cirrhosis. Another third develop fatty livers, while the remainder have only minor liver problems.

In general, the more you drink, the greater the frequency and regularity of excessive intake, the more likely that cirrhosis will result. A poor diet, long considered to be the main factor in the development of cirrhosis in the alcoholic, is probably only a contributing factor. Alcohol itself, in large amounts, is a poison that can cause cirrhosis.

What causes cirrhosis?

There are a number of conditions that can lead to cirrhosis:

• Excessive intake of alcohol (most common)
• Chronic viral hepatitis, types B, C, and D
• Primary biliary cirrhosis - an autoimmune liver disease primarily affecting women
• Primary sclerosing cholangitis - a disease of the bile ducts, most often seen in patients with colitis
• Inherited or congenital diseases: hemochromatosis - abnormal accumulation of iron in the liver and other organs due to the decreased excretion of iron from the liver.

While almost everyone who drinks excessive amounts of alcohol sustain some liver damage, it does not necessarily develop into cirrhosis. In those individuals who drink one half to one pint (8 to 16 ounces) of hard liquor per day (or the equivalent in other alcoholic drinks), for 15 years or more, about one-third develop cirrhosis. Another third develop fatty livers, while the remainder have only minor liver problems.

In general, the more you drink, the greater the frequency and regularity of excessive intake, the more likely that cirrhosis will result. A poor diet, long considered to be the main factor in the development of cirrhosis in the alcoholic, is probably only a contributing factor. Alcohol itself, in large amounts, is a poison that can cause cirrhosis.

What are the signs and symptoms of cirrhosis?

The onset of cirrhosis is often “silent” with few specific symptoms to identify what is happening in the liver. As continued scarring and destruction occur, the following signs and symptoms may appear:

• Loss of appetite
• Nausea and vomiting
• Weight loss
• Enlargement of the liver
• Jaundice - yellow discoloration of the whites of the eyes and skin occurs because bile pigment can no longer be removed by the liver
• Itching - due to the retention of bile products in the skin
• Aches - abdominal swelling due to an accumulation of fluid caused by the obstruction of blood flow through the liver
• Vomiting of blood - frequently occurs from portal, ruptured varices (veins that burst in the lower and of the esophagus due to the increased pressure in these vessels caused by scar tissue formation
• Increased sensitivity to drugs - due to the inability of the liver to inactivate them
• Encephalopathy (impending coma) - subtle mental changes advancing to profound confusion and coma

Many patients may have no symptoms and are found to have cirrhosis by physical examination and laboratory tests, which may have been performed in the course of treatment for unrelated illnesses.

How is cirrhosis treated?

Treatment depends on the type and stage of the cirrhosis. It aims to stop the progress of the cirrhosis, reverse it (whatever extent possible) the damage that has already occurred, and treat complications that are disabling or life-threatening.
Stopping or reversing the process requires removal of the cause.

In alcoholic cirrhosis
- A abstinence from alcohol
- An adequate, wholesome diet

In cirrhosis caused by primary biliary cirrhosis
- Ursodiol/ursodeoxycholic acid is recommended

In cirrhosis caused by viral hepatitis
- Treatment of hepatitis B or C

In certain types of cirrhosis caused by autoimmune hepatitis
- Corticosteroids alone or with azathioprine may be an effective treatment

In cirrhotic patients with jaundice
- Medication to improve immune responses to viral infection is an approved approach

Complications of cirrhosis include ascites, coma and hemorrhage from esophageal varices. Additional complications of cirrhosis include:

- Ascites: is treated by reducing the intake of salt and water (diuretics). In some instances, large amounts of fluids are removed by direct catheter drainage through the abdominal wall (large volume paracentesis).
- Treatment of coma, or impending coma (encephalopathy), includes specific medications, and control of intestinal hemorrhage.
- Treatment of hemorrhage from varices (internal variceal veins) includes drugs to reduce the likelihood of bleeding or rebleeding, endoscopic band ligation of varices, and a radiological procedure called transjugular intrahepatic portosystemic shunt (TIPS).

How can I avoid cirrhosis?

1. Do not drink to excess.
   - Avoid the use of alcoholic beverages.
   - Alcohol destroys liver cells. How well damaged cells regenerate varies with each individual. Prior injury to the liver by unknown and unrecognized viruses or chemicals can also affect the regeneration process.
2. Take precautions when using man-made chemicals.
   - The liver must process many chemicals that were not present in the past. More research is needed to determine the effects on the liver of many of these compounds. When using chemicals at work, in cleaning your home, or working in your garden:
     - Be sure there is good ventilation
     - Follow directions for use of all products
     - Never mix chemical products
     - Avoid getting chemicals on the skin, where they can be absorbed, and wash promptly if you do.
     - Avoid inhaling chemicals
     - Wear protective clothing
3. Seek medical advice.
   - Remain under supervision of a physician if you develop viral hepatitis until your recovery is assured.

How might cirrhosis affect other diseases I might have or treatment of them?

The responsibility of the liver for the proper functioning of the whole body is so great that the chronic disease of the liver may modify the body’s responses to a variety of illnesses. Abnormal function of the liver in cirrhosis may:

- Affect the dose of medicine required in the treatment of other conditions
- Affect the treatment of diabetes
- Alter response of the body to infection
- Alter tolerance for surgical procedures

Patients with cirrhosis are particularly prone to develop fatal bacterial infections, kidney malfunction, stomach ulcers, gallstones, a type of diabetes and cancer of the liver.

What are my prospects for reasonable health and survival with treatment?

Treatment at this stage, with proper adherence to the physician’s recommendations, leads to improvement in the majority of cases and the patient is able to pursue a normal life and activities.

When cirrhosis is not discovered until extensive damage has resulted, the outlook may be less favorable for improvement, and complications such as ascites and hemorrhage are more likely to be encountered.

The liver is a large organ and is able to perform its vital functions despite some damage. It also has the ability to repair itself to a limited degree. Cells that die are replaced by new cells. If the cause of cirrhosis can be removed, these factors provide hope for both improvement and carrying on a normal life.

An increasing number of scientific investigators conducting liver research give hope for new breakthroughs in treatment, management and cures for liver diseases in the foreseeable future.