

Chronic Liver Disease

Chronic liver disease (CLD) is a progressive deterioration of liver functions for more than six months, which includes synthesis of clotting factors, other proteins, detoxification of harmful products of metabolism, and excretion of bile. CLD is a continuous process of inflammation, destruction, and regeneration of liver parenchyma, which leads to fibrosis and cirrhosis.

The spectrum of etiologies is broad for chronic liver disease, which includes toxins, alcohol abuse for a prolonged time, infection, autoimmune diseases, genetic and metabolic disorders.

Cirrhosis is a final stage of chronic liver disease that results in disruption of liver architecture, the formation of widespread nodules, vascular reorganization, neo-angiogenesis, and deposition of an extracellular matrix.

The underlying mechanism of fibrosis and cirrhosis at a cellular level is the recruitment of stellate cells and fibroblasts, resulting in fibrosis, while parenchymal regeneration relies on hepatic stem cells.

Chronic liver disease is an extremely common clinical condition, and the focus is done on the common etiologies, clinical manifestations, and management.

What is liver disease?

Liver disease is any disturbance of **liver function** that causes illness. The liver is responsible for many critical functions within the body and should it become diseased or injured, the loss of those functions can cause significant damage to the body. Liver disease is also referred to as hepatic disease.

Liver disease is a broad term that covers all the potential problems that cause the liver to fail to perform its designated functions. Usually, more than 75% or three quarters of liver tissue needs to be affected before a decrease in function occurs.

The liver is the largest solid organ in the body; and is also considered a gland because among its many functions, it makes and secretes bile. The liver is located in the upper

right portion of the abdomen protected by the rib cage. It has two main lobes that are made up of tiny lobules. The liver cells have two different sources of blood supply. The hepatic artery supplies oxygen rich blood that is pumped from the **heart**, while the portal vein supplies nutrients from the intestine and the spleen.

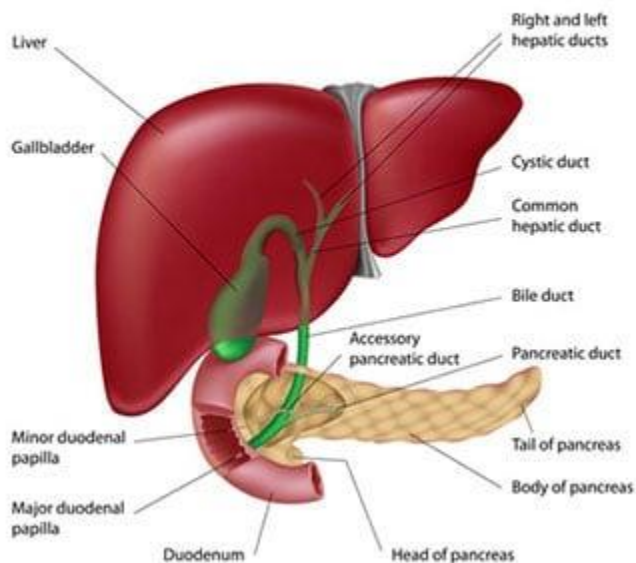
Normally, veins return blood from the body to the heart, but the portal vein allows nutrients and chemicals from the digestive tract to enter the liver for processing and filtering prior to entering the general circulation. The portal vein also efficiently delivers the chemicals and proteins that liver cells need to produce the proteins, **cholesterol**, and glycogen required for normal body activities.

Chronic Liver Disease Symptoms & Signs

Signs and symptoms associated with liver disease vary and are dependent upon the exact type of liver disease that is present. Examples of signs and symptoms of liver disease include

- jaundice,
- abdominal pain and swelling,
- itchy skin,
- dark urine color,
- nausea,
- vomiting,
- chronic fatigue,
- pale stool color,
- bloody stool,
- tar-colored stool,
- swelling in the ankles and legs,
- loss of appetite, and
- easy bruising.

Liver, Gallbladder, Pancreas and Bile Passage



What is the function of the liver?

As part of its function, the liver makes bile, a fluid that contains among other substances, water, chemicals, and bile acids (made from stored cholesterol in the liver). Bile is stored in the gallbladder and when food enters the duodenum (the first part of the small intestine), bile is secreted into the duodenum, to aid in the **digestion** of food.

The liver is the only organ in the body that can easily replace damaged cells, but if enough cells are lost, the liver may not be able to meet the needs of the body.

The liver can be considered a factory, and among its many functions include:

- Production of bile that is required in the digestion of food, in particular, **fats**
- Storing of the extra glucose or **sugar** as glycogen, and then converting it back into glucose when the body needs it for energy
- Production of blood clotting factors
- Production of amino acids (the building blocks for making proteins), including those used to help fight infection
- The processing and storage of iron necessary for red blood cell production

- The manufacture of cholesterol and other chemicals required for fat transport
- The conversion of waste products of body metabolism into urea that is excreted in the urine

When should you call your doctor for Chronic liver disease?

Often, the onset of liver disease is gradual and there is no specific symptom that brings the affected individual to seek medical care. **Fatigue**, weakness, and **weight loss** that cannot be explained should prompt a visit for medical evaluation. Jaundice or yellow skin is never normal and should prompt an evaluation by a health care professional. Persistent **fever**, vomiting, and **abdominal pain** should also prompt medical evaluation as soon as possible.

Acetaminophen or **Tylenol** overdose, whether accidental or intentional, can cause acute liver failure. Emergent evaluation and treatment are required. Antidotes to protect the liver can be provided, but are effective only when used within a few hours. Without this intervention, acetaminophen overdose can lead to liver failure. Symptoms only occur after potential liver damage has occurred.

Other causes of Chronic liver disease

Since the liver is responsible for the functions that affect so many other organs in the body, liver disease and failure may cause complications. Examples include:

Hepatic encephalopathy: Increased ammonia levels due to the liver's inability to process and metabolize proteins in the **diet** can cause **confusion**, lethargy, and **coma**.

Abnormal bleeding: The liver is responsible for manufacturing blood clotting factors. Decreased **liver function** can cause an increased risk of bleeding in the body.

Protein synthesis or manufacture: proteins made in the liver are the building blocks for body function. Lack of protein affects many bodily functions

Is it possible to prevent Chronic liver disease?

- **Alcohol abuse** is the most common cause of liver disease in North America. Consuming alcohol in moderation may help minimize the risk of alcohol-related liver disease.
- The risk of contracting **Hepatitis B** and **C** can be decreased by minimizing the risk of exposure to another person's bodily fluids.
- Vaccination is available for **Hepatitis A** and **B**.
- Screening for **Hepatitis C** is recommended in some populations.
- **Fatty liver disease** is a preventable illness with the promotion of a healthy lifestyle including a well-balanced **diet**, **weight control**, avoiding excess alcohol consumption, and routine **exercise** program. These lifestyle modifications do not guarantee success in **disease prevention**, as some people will develop the **fatty liver** disease even with maximized lifestyle practices.