

LIVER CIRRHOSIS AND ITS PREVENTIVE MEASURES

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Annotation: This article discusses the essence and causes of liver cirrhosis. Liver cirrhosis is a severe chronic disease characterized by the destruction of liver cells and their replacement with fibrous (scar) tissue. Cirrhosis leads to liver dysfunction and can result in life-threatening complications. Particular attention in the paper is given to the main causes of the disease, including viral hepatitis (especially hepatitis B and C), prolonged alcohol consumption, fatty liver disease, autoimmune processes, genetic factors, as well as the effects of toxic substances and certain medications. The annotation provides a brief analysis of the progressive nature of cirrhosis, the gradual replacement of liver tissue with connective tissue, liver failure, and other serious consequences.

Keywords: hepatitis, cirrhosis, alcohol, ascites, liver, bilirubin, ultrasonography, encephalopathy, biopsy, NAFLD, curcumin.

Relevance of the Topic: Liver cirrhosis (*cirrhosis hepatis*) is a progressive condition in which healthy liver tissue is gradually destroyed and replaced by fibrous connective tissue, leading to the disruption of normal liver function. This condition prevents the liver from performing its essential functions, such as metabolism, detoxification, blood clotting, and more. The disease progresses slowly and may eventually result in liver failure or liver cancer. **Global Significance:** Liver cirrhosis is a serious global health issue. It is responsible for the deaths of nearly 1 million people worldwide each year. It ranks among the leading causes of death after cardiovascular diseases and cancer. **Increasing prevalence among younger populations:** While liver cirrhosis used to be more common in older adults, its growing incidence among individuals aged 30–40 has further increased the relevance of this issue. **Burden on the healthcare system:** Hospitalizations due to liver cirrhosis, the need for long-term treatment, and liver transplantation place a significant financial and resource burden on healthcare systems. **Risk variability and influencing factors:** The likelihood of developing liver cirrhosis depends on multiple factors, and the prevalence of the disease varies across regions. The main risk factors that increase the probability of cirrhosis include: **Age and sex:** Liver cirrhosis is most frequently diagnosed in middle-aged and older adults, often between the ages of 40 and 60. The risk increases with age. **Gender differences:** Cirrhosis is more common in men, largely due to higher rates of alcohol consumption, which significantly contributes to disease progression. However,

women are more likely to develop cirrhosis related to non-alcoholic fatty liver disease (NAFLD) and hepatitis C. **Main Diseases and Risk Factors:** Viral Hepatitis: Hepatitis B and C are major causes of liver cirrhosis. In regions where these viral infections are prevalent, the likelihood of developing cirrhosis is also higher. For instance, hepatitis C accounts for 30-40% of cirrhosis cases. **Alcohol and Obesity:** Alcohol-related cirrhosis, as well as cirrhosis associated with obesity and diabetes, are common. The risk of cirrhosis is significantly higher in individuals who consume alcohol excessively. Additionally, obesity and diabetes can lead to fatty liver disease and liver cirrhosis. **Importance of Early Detection and Prevention** **The Need for Screening Programs:** It is crucial to conduct mass screening programs to detect hepatitis C and B early in the population. This can help prevent the development of liver cirrhosis. **Increasing Public Awareness:** Strengthening public awareness campaigns regarding proper nutrition, abstaining from alcohol, and vaccinating against hepatitis is vital. **Liver Transplantation Development:** In the advanced stages, liver transplantation remains the only option for saving a patient's life. This remains a critical issue in regions where the field is underdeveloped. During the COVID-19 pandemic, patients with chronic liver diseases were more susceptible to the virus and experienced severe complications. This has once again emphasized the importance of managing chronic diseases and providing timely treatment.^[1]

Causes of Liver Cirrhosis: The main factors that lead to liver cirrhosis are as follows: **Viral Hepatitis:** Particularly hepatitis B and C viruses can damage liver cells over a long period, leading to cirrhosis. **Alcohol:** Chronic alcohol consumption poisons liver cells and gradually destroys them. **Fatty Liver (Steatosis) and Poor Nutrition:** Excessive fat accumulation, especially when combined with diabetes and obesity, leads to cirrhosis. **Autoimmune Hepatitis:** In this case, the body's immune system attacks the liver and destroys its cells. **Genetic (Hereditary) Diseases:** For example, Wilson's disease (copper accumulation in the liver) or hemochromatosis (excess iron accumulation) can cause cirrhosis. **Some Medications and Toxins:** Prolonged use of certain medications or chemicals damages the liver. **Gastrointestinal Diseases or Blood Flow Disorders:** Some conditions that obstruct blood flow through the liver can also lead to cirrhosis. **Early (Initial) Symptoms of Liver Cirrhosis:** Weakness, fatigue, inability to work. Decreased appetite, weight loss. Nausea, sometimes vomiting. Abdominal bloating and gas accumulation. Fever (mild or moderate). Yellowing of the skin and eyes (jaundice). Pain in the upper right side of the abdomen (mild pain or a feeling of pressure). **Main Symptoms Observed as Cirrhosis Progresses:** Jaundice (yellowing of the skin): Increased bilirubin levels. Ascites (fluid accumulation in the abdomen): The abdomen swells. Swelling in the legs and ankles: Due to fluid retention. Spider angiomas (small blood vessels on the skin): Especially on the face and chest. Palmar erythema (redness of the palms). Nosebleeds, gum bleeding: Due to clotting issues. Pale stools, dark urine. Sexual dysfunction, menstrual irregularities in women. Gynecomastia (enlargement of breast tissue in men). Memory impairment, decreased concentration, confusion: Signs of hepatic encephalopathy. **Signs of Severe Conditions and Complications:** Internal bleeding (from the gastrointestinal tract, especially varicose veins in the esophagus). Confusion, coma. Acute liver failure. Frequent infections. The disease develops due to various causes, and effective diagnostic and treatment methodologies have been developed to reduce the risk of death. The methodology for liver cirrhosis includes the following key stages:

Methodology for Diagnosing Liver Cirrhosis

Clinical Examination: **Clinical History:** To diagnose liver cirrhosis, it is necessary to study the patient's clinical history. The main symptoms to pay attention to during the examination include: **Fatigue and Weakness:** Patients often complain of severe fatigue and weakness. **Jaundice:** Yellowing of the skin and sclera (white part of the eyes) may be a sign of liver dysfunction. **Ascites:** Fluid accumulation in the abdominal cavity. **Gastrointestinal Bleeding:** Bloody vomiting or stools are seen in advanced stages of liver cirrhosis. **Laboratory Tests:** Blood

Tests: Essential for assessing liver function: Liver Function Tests (LFT): These tests measure liver enzymes (ALT, AST) to indicate the extent of liver damage. Prothrombin Time (PT): A test to check liver's ability to clot blood. Albumin Levels: Indicates liver's protein production capacity. Bilirubin Levels: Used to assess the liver's ability to process waste products. Hepatitis Tests: Tests for hepatitis B and C viruses, as these viruses are among the primary causes of cirrhosis. Imaging Techniques: Ultrasound (USG): Used to detect early stages of liver cirrhosis, showing changes in liver size, shape, and structure. Fibroscan (Elastography): Helps assess the degree of cirrhosis by measuring liver stiffness. It is used to detect fibrosis and cirrhosis. CT and MRI Scans: Used to more accurately examine the liver and blood vessels. Liver Biopsy: A biopsy involves a microscopic examination of liver cells to determine the extent of liver changes in advanced cirrhosis. Samples of liver cells are taken for analysis. Treatment Methodology for Liver Cirrhosis: Conservative Treatment: Medications: Various medications are used in the treatment of cirrhosis: Antiviral Drugs: Used for treating hepatitis B or C, and can slow the progression of cirrhosis. Diuretics: Used to treat ascites. Beta-blockers: Help prevent gastrointestinal bleeding. Liver Protectants: Medications that support altered metabolism and stimulate the regeneration of liver cells. Liver Transplantation: In advanced stages of cirrhosis or liver failure, a liver transplant is required. This procedure involves replacing the damaged liver with a healthy one. Nutrition and Lifestyle: Improving Nutrition: Healthy eating, physical activity, and consumption of foods rich in vitamins and minerals support liver health. It is also essential to control obesity and diabetes. Limiting Alcohol: Complete alcohol abstinence can slow the progression of cirrhosis and protect the liver. Preventing Liver Cirrhosis: Vaccination Against Hepatitis B and C: Preventing viral hepatitis reduces the risk of cirrhosis development. Limiting Alcohol and Leading a Healthy Lifestyle: Healthy eating and regular physical activity help prevent cirrhosis. Regular Check-ups: Early detection and treatment of cirrhosis are more effective, so patients should undergo regular screenings, including liver function tests, ultrasound, elastography, and biochemical tests. Clinical Monitoring: Patients with progressing liver cirrhosis need to be monitored clinically over the years to evaluate treatment effectiveness and optimize care. The main findings of cirrhosis are crucial for diagnosing and treating the disease. Cirrhosis arises due to irreversible damage to liver cells and the disruption of normal liver functions. Below are the main findings of liver cirrhosis: Clinical (or Physical) Findings: Jaundice: The yellowing of the skin and the whites of the eyes, caused by the accumulation of bilirubin in the blood and tissues due to liver dysfunction. This is one of the most specific signs of cirrhosis. Ascites: The accumulation of fluid in the abdominal cavity. As cirrhosis progresses, liver circulation and protein production decrease, leading to fluid buildup. Ascites is seen in advanced stages of liver cirrhosis. Splenomegaly: The enlargement of the spleen, commonly observed in patients with cirrhosis due to complications in the liver's blood vessels and portal hypertension (increased pressure in the liver and blood vessels). Clinical Anemia: Patients with liver cirrhosis often experience anemia (a decrease in red blood cells). This is primarily caused by the disruption of the liver's functions in blood production and processing of blood cells. Pain in the Abdomen and Chest: As cirrhosis progresses, patients may feel pain or a sense of fullness in the abdominal cavity. This is related to liver enlargement and damage. Brain Dysfunction (Encephalopathy): Disruptions in brain function, such as changes in mental state, difficulty concentrating, and confusion, can occur. Hepatic encephalopathy (HE) associated with liver cirrhosis can impair patients' consciousness. Laboratory Findings: ALT (Alanine Aminotransferase) and AST (Aspartate Aminotransferase): These enzymes are elevated in the liver, and their levels can indicate cirrhosis and liver damage. In cirrhosis, these enzymes are often elevated. Bilirubin: An increase in bilirubin levels leads to jaundice and is seen as one of the signs of liver cirrhosis. Albumin: As cirrhosis progresses, albumin levels decrease because the liver's ability to produce proteins is impaired. In liver cirrhosis, the liver loses its ability to filter and excrete ammonia, leading to an accumulation of ammonia in the blood. Imaging Findings: Ultrasound: Ultrasound can reveal changes in liver size and shape, as well as fluid accumulation in the liver (ascites), and splenomegaly (enlarged spleen). It is effective in

identifying early-stage cirrhosis. **Elastography:** This method measures the stiffness of the liver. In cirrhosis, liver tissue becomes stiffer, and elastography helps determine the stage of the disease. **CT (Computed Tomography) and MRI (Magnetic Resonance Imaging):** These methods help detect structural changes in the liver, such as stiffness, swelling, and fluid accumulation. They provide a more detailed examination of the liver and blood vessels. **Liver Biopsy:** A liver biopsy is used to assess the final stages of cirrhosis, providing detailed insight into the extent of liver damage. Microscopic analysis confirms the changes in liver cells, the presence of fibrosis, and cirrhosis. Biopsy also helps identify the cause of cirrhosis (such as hepatitis, alcohol, non-alcoholic fatty liver). Liver cirrhosis is a chronic and progressive disease that leads to the loss of normal liver functions. It develops due to various factors, including viral hepatitis, alcoholism, obesity, and diabetes. Preventive measures and a healthy diet are essential to prevent liver cirrhosis. Below are some recommendations for preventing cirrhosis and consuming beneficial products. **Main ways to prevent liver cirrhosis:** **Prevention of Viral Hepatitis B and C:** Hepatitis B and C are major causes of liver cirrhosis. Hepatitis B and C viruses spread through blood, so it is crucial to prevent exposure to them. **Vaccination:** The available vaccine for Hepatitis B helps prevent liver cirrhosis. **Healthy Lifestyle:** To prevent Hepatitis C, it is important to avoid risky sexual practices and sharing medical tools. Additionally, using sunscreen and maintaining hygiene are crucial for liver protection. **Limiting Alcohol:** Excessive alcohol consumption is one of the biggest risk factors for liver cirrhosis. **Limiting Alcohol Consumption or Avoiding It Entirely:** Reducing or completely avoiding alcohol intake plays an important role in protecting the liver. **Healthy Limits:** It is recommended that men do not exceed 2 alcoholic drinks per day and women no more than 1. **Preventing Obesity and Increasing Physical Activity:** Obesity and excess weight can lead to the development of liver cirrhosis, especially in cases of non-alcoholic fatty liver disease (NAFLD). It is important to reduce the intake of high-calorie foods and fatty products. **Physical Activity:** At least 150 minutes of moderate physical activity per week, such as light jogging or brisk walking, is recommended. **Controlling Diabetes:** Diabetes can also contribute to the development of liver cirrhosis. Therefore, maintaining normal blood sugar levels is crucial. **Blood Sugar Control:** It is recommended to control diabetes through a healthy diet and regular physical exercise. **Medical Check-ups and Monitoring:** If you have risk factors such as viral hepatitis, obesity, or others, it is important to undergo regular liver examinations and careful monitoring. This helps detect and treat the disease in its early stages. **Liver-Friendly Foods:** Some foods are considered very beneficial for maintaining liver health. They help eliminate toxins that accumulate in the liver and support its functions. **Green Tea:** Green tea contains antioxidants, especially catechins, which help eliminate harmful toxins from the liver. Regular consumption of green tea helps protect the liver. **Apple:** Apples contain pectin, a soluble fiber that supports the removal of toxins from the liver. Apples also help prevent fat accumulation in the liver. **Garlic:** Garlic contains allicin compounds that enhance the liver's detoxification processes. Garlic protects the liver and helps in its regeneration. **Turmeric:** Turmeric contains curcumin compounds that are beneficial in protecting liver cells and reducing inflammation. Turmeric nourishes the liver and supports its healthy function. **Avocado:** Avocados are rich in healthy fats and antioxidants that support liver health. They help protect the liver and prevent damage. **Nuts:** Nuts contain plant-based oils and antioxidants that support healthy liver function. They also help reduce inflammation in the liver. **Consume low-fat and low-sugar foods:** Fatty and sugary foods can damage the liver. **Drink plenty of water:** Water helps cleanse the liver and maintain its normal function. **Reduce stress:** Chronic stress and lack of sleep can negatively affect the liver. Maintain a healthy lifestyle through meditation, yoga, or other stress-reducing activities.

Conclusion

The likelihood of developing liver cirrhosis varies depending on factors such as age, gender, geographic location, healthcare system, and risk factors. The methodology of liver cirrhosis involves diagnosis, evaluation, treatment, and ongoing monitoring. Early diagnosis and treatment,

as well as a comprehensive approach to prevention, are essential for managing the progression of cirrhosis. These approaches help prevent cirrhosis, slow its progression, and improve the quality of life for patients. The key findings of liver cirrhosis are primarily identified through clinical signs (jaundice, ascites, enlarged spleen), laboratory tests (bilirubin, albumin, prothrombin time), and imaging methods (ultrasound, elastography). These findings help assess the severity of the disease and the extent of liver function impairment. To prevent liver cirrhosis, it is important to adopt a healthy lifestyle, limit alcohol consumption and viral hepatitis exposure, and control obesity and diabetes. Additionally, consuming liver-friendly foods such as green tea, garlic, avocado, turmeric, and other natural products supports liver health and helps protect it.

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