DOI: https://doi.org/10.54393/mjz.v1i1.7

MARKHOR
THE JOURNAL OF ZOOLOGY
https://www.markhorjournal.com/index.php/mjz
Volume 1, Issue 1 (Jan-Jun 2020)

Review Article

Chronic liver disease and it's complications

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ABSTRACT

Liver diseases progresses to more severe forms and thus are a major health problem. Cirrhosis and primitive liver cancer are significantly important in the west and are among the first 10 causes of death in adults. In all chronic liver diseases the final common pathway is liver cirrhosis, characterized by an accumulation of extracellular matrix rich in fibrillar collagens. Cirrhotic patients are at risk of developing many potential complications.One of the major complications of CLDs is Portal hypertension (PH),leads to the progression of portal vein-systemic collateral circulation that includes portal hypertensive gastropathy (PHG) and esophageal and gastric varices. Disabling and distressing manifestation of liver cirrhosis is tense ascites. In the presence of ascites alteration occurs in ventricular function. Cirrhosis may cause renal dysfunction, a common and potentially life threatening complication in hospitalized patients. Both acute kidney injury (AKI) and chronic kidney injury (CKD) are most common, often occurring simultaneously.

Key words:

Liver disease, Complications, Hepatorenal syndrome, Ascites

How to Cite

Arshad, M. ., Asif, H., John, A., & Pasha, M. O. (2020). Chronic Liver Disease and it's Complications. MARKHOR (The Journal of Zoology), 1(1), 3–7. https://doi.org/10.54393/mjz.v1i1.7

INTRODUCTION

Chronic liver disease is defined as an inflammatory injury to the liver, that prolongs for six months or more [1]. it is the combination of many liver abnormalities such as fibrosis, hepatocyte carcinoma and cirrhosis [2].

Chronic liver disease causes morbidity and mortality worldwide [3]. now a days Chronic liver disease is the 5th most common cause of death in United Kingdom. Prevalence rate of chronic liver disease is increasing day by day. Therefore its very important to get knowledge about live disease, its complications and treatment[4]. In Pakistan incidence rate of liver disease is also very high and associated with increased death rate [5,6]. According to World Health Organization about 3% world's population is effected by hepatitis C and 130 million are suffering from cirrhosis or liver cancer[7]. Potentially chronic liver disease is becoming a life threatening issue in humans. Major etiological factors of liver disease are infections (hepatitis B, hepatitis C) [8], autoimmune disorders (nonalcoholic fatty liver diseases) [9], intoxications (including alcohol abuse, cigarette smoking) [10], Hemochromatosis (iron overload),obesity, imbalanced diets [11], diabetes [12] and depression [13]. Patients with co-morbidities and chronic hepatitis C are at the great risk of developing advanced cirrhosis and Hepatocellular carcinoma [14]. The most important causative agents are Hepatitis viral infections and alcoholism [15]. In Asian countries viral infection is a leading cause to cirrhosis [16]. Whereas in West like England ,alcohol induced liver diseases makes major contribution [17]. The major risk factor of chronic liver diseases is older age; its incidence is increased after age of forty. The incidence rate is higher in males as compare females [18].Ascites, portal hypertension, hepatorenal syndrome, Hepatic Encephalopathy (HE) andvariceal bleeding are main complications of cirrhosis [19]. Whereas other complications are gynecomastia [20] and spontaneous bacterial peritonitis (SBP) or pneumonia [21]. Irrespective of cause

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chronic liver inflammation is usually asymptomatic. Consequently diagnosis tends to be possible when the disease is in the advanced stages and is thus irreversible and treatment possibilities are few [22]. However, cirrhosis known as end stage of liver damage with significant symptoms. Common symptoms of liver cirrhosis are weakness, GIT bleeding and jaundice. Patients with cirrhosis are at great risk of liver cancer [23].

Complications

In all chronic liver diseases the final common pathway is liver cirrhosis.Cirrhosis mainly defined by excessive assemblage of extracellular fibrillar collagens matrix. Patients with cirrhosis develops many other health complications such as heart and kidney disorders. Bleeding and ascites are two common symptoms present almost in each case. Bacterial peritonitis, hepatorenal syndrome and hepatic encephalopathy are the complications which occur at the last stage of chronic liver disease. Antiviral vaccination therapy has great potential to reduce the incidence rate of chronic liver diseases. In last decades mortality rate is reduced due to viral therapy in developing countries. Recently many advance measurements and treatments are designed to diagnose pathophysiology and treatment of chronic liver disease to decrease morbidity and mortality rate due to liver disease throughout the world. [24].

Ascities

Ascites is the one of most common complication of cirrhosis. Normally it is characterized by change in ventricular performance. During tense ascites, sympathetic nervous system and Renin-angiotensin-aldosterone are activated. Activation of these two act as pathogenic factors and cause increased thickness of left ventricular [25].

Hepatic Encephalopathy

Hepatic encephalopathy is another common complication seen in patients with chronic liver disease. Hepatic encephalopathy is a neurological condition, involved poor cognition and attention [26]. About 30 to 45% cirrhotic patients are effected by this complication and majority of patients suffer from lower degree of hepatic encephalopathy [27]. Pathophysiology behind the hepatic encephalopathy is the shunting of blood flow. This condition on progression leads toward serious neurological abnormalities. Other pathological factors are decreased metabolism and increased production of certain neuratoxins such as ammonia [28].

Portal hypertension

One of the major complications of CLDs is Portal hypertension (PH),leads to the progression of portal vein-systemic collateral circulation that includes portal hypertensive gastropathy (PHG) and esophageal and gastric varices [29].A dreaded complication of portal hypertension is variceal bleeding. Although over the last several decadesthe progression of this disease have improved, it still cause mortality [30]. In patients with CLDs esophageal variceal bleeding is most frequent complication [31]. Bleeding from GIT, hypertensive gastropathy, ruptured esophageal varices and ectopic varices causes portal hypertensive injury that leads toward bleeding. Massive gastrointestinal track bleeding significantly represented by Variceal bleeding particularly with hematemesis , melena or hematochezia(Tiuca & Sztogrin 2011).A frequent reason behind disease and death in liver cirrhosis is upper gastrointestinal bleeding [32]. Hemostasis is a central role of liver, by the synthesis of clotting factors, inhibitors of coagulation, and fibrinolytic proteins. In acute and chronic liver disease frequently develop complex coagulation disorders. Decrease of most procoagulant factors notable increase of factor VIII and von Willebrand factor occur in CLDs [33]. Thrombocytopenia and impaired humoral coagulation are most common disorders of

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coagulation. Liver transplantation is effective intervention to restores impaired coagulation. It is the only intervention for liver failure [34].

Hepatorenal syndrome

Cirrhosis also effect renal function which collectively leads toward many other complications. Renal dysfunction is most common among hospitalized cirrhotic patients. Cirrhotic patients face both acute and chronic liver failure. Sometimes both conditions are present simultaneously [35]. Approximately 20% hopitalized cirrhotic patients are affected by acute renal failure. Acute renal failure is characterized by increased serum creatinine levels. Change in vasoconstrictor hormones, vasodilatory state and decreased blood volume are the pathophysiological factors of acute renal injury. Other factors of acute renal injury in cirrhosis are tubular necrosis, hepatorenal syndrome and pre-renal azotemia. Acute renal injury in chronic liver disease is considered as last event after that liver transplantation is recommended. Portal hypertension is the main reason of hepatorenal syndrome, it may be caused by inflammatory reactions, bacterial reactions, diarrhea and GI hemorrhage [36]. Splanchnic arterial vasodilatation and hyperpermeability followed by bacterial translocation (BT) is the central pathology of HRS [37].

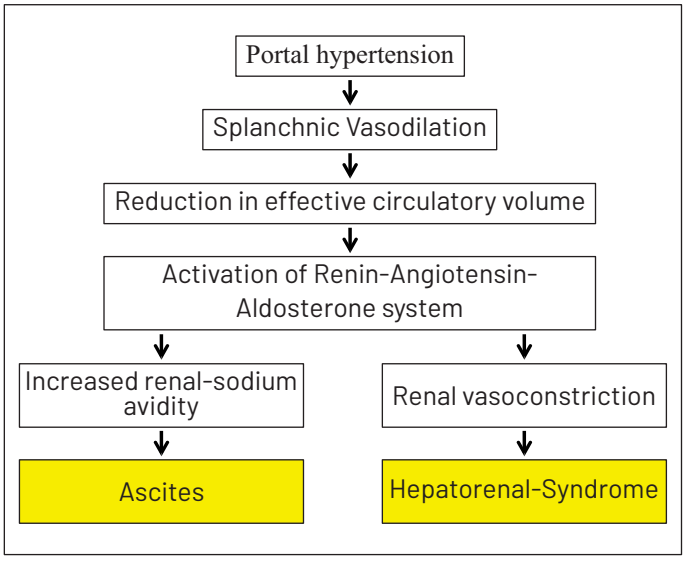

Figure 1: Mechanism behind Hepatorenal-renal syndrome [36,37]

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