ORIGINAL ARTICLE

Frequency of Portal Vein Thrombosis in Patients with Liver Cirrhosis

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ABSTRACT

Background: Chronic hepatitis C load in Pakistan is one of the highest in the world and is a cause of significant mortality mainly because of liver failure. Patient with advanced cirrhosis can develop Portal vein thrombosis (PVT) and is a really common complication. Local as well as systemic causes might play an important role in development of PVT. PVT is responsible for about 5 – 10% of overall cases of portal hypertension and its prevalence among cirrhotic patients ranges between 4.4 - 15%.

Patients and Methods: This study was conducted in Department of Medicine at Combined Military Hospital Lahore from January to June 2015. In this study, 75 patients having liver cirrhosis were included in which 46 patients (61.33%) were males and 29 patients (38.67%) were females. All patients had Doppler Ultrasonography by same consultant radiologist for evidence of portal vein thrombosis.

Results: Out of 75 patients registered in this study, 11 patients (14.67%) developed portal vein thrombosis. in which 7 patients (63.63%) were male while 4 patients (36.37%) were female. Out of these 6 had chronic hepatitis C (54.54%) and 4 (36.36%) had chronic hepatitis B.

Conclusion: Portal vein thrombosis is frequent in patients with liver cirrhosis although it is not common in normal population.

Keywords: portal vein, thrombosis, liver cirrhosis

INTRODUCTION

Cirrhosis results in distortion of smooth architecture of the liver into nodular structure which occurs due to fibrosis. This leads to the development of complications of chronic liver disease like portal hypertension, variceal bleed, ascites, spontaneous bacterial peritonitis, hepatopulmonary syndrome and hepatorenal syndrome.[1] Portal hypertension is one of the complications of liver cirrhosis but it can occur independently. Various local or systemic causes can contribute to the development of portal vein thrombosis. Portal vein thrombosis ranges between 4.4 to 5.5% among patients with cirrhosis and is a reason of 5 to 10% of overall cases of portal hypertension.[2] Inherited and acquired disorders of coagulation pathway including mutations in prothrombin gene, deficiency of protein C and S, anti-thrombin III and activated protein C resistance.[3,4] are major patho-physiologic mechanisms of portal vein thrombosis. In addition, stasis of blood is another major contributory factor caused by global resistance to hepatic blood flow produced by cirrhosis.

Abdominal pain, nausea, vomiting, fever, diarrhea, rectal bleeding, abdominal distension, anorexia and splenomegaly are more frequent in patients with acute portal vein thrombosis. Chronic portal vein thrombosis can be asymptomatic or present with pancytopenia, esophageal varices, splenomegaly or ascites.[5] In cirrhotic patients with portal hypertension, portal vein thrombosis must be investigated even though it is a rare event[2]. The recent data suggests prevalence of portal vein thrombosis of about 0.6 to 16% in cirrhotic patients but exact data is still unknown. It is important to investigate for the common pro-thrombotic disorders after excluding local factors to assess about the original cause of the portal vein thrombosis which will help in its correct management. In addition, liver transplantation, which was not routinely performed in past, is now becoming available at various centres locally.

Therefore, this study will help to identify cirrhotic patients having PVT, which is a contraindication to liver transplant.

Although PVT is divided into acute and chronic, this division is often difficult to apply clinically, patients with complaints of abdominal pain, fever, nausea and vomiting in last 60 days prior to admission are mostly considered as having acute PVT.[6,7] However, acute PVT is often a missed diagnosis. PVT can be categorized into four classes, depending on the extension: (1) confined to the portal vein beyond the confluence of the splenic vein; (2) extended to the superior mesenteric vein, but with patent mesenteric vessels; (3) extended to the whole splanchnic venous system, but with large collaterals; or (4) with only fine collaterals.[8] This categorization helps about assessment of patients. In countries where portal vein thrombosis is diagnosed early, cavernomatous transformation or upper gastrointestinal bleeding is rare. Incidental findings of hypersplenism, signs of portal hypertension or less frequently symptoms of portal cholangiopathy form the basis of the clinical suspicion. Ultrasonography is usually the first line investigation with a sensitivity and specificity ranges between 60% and 100%.[9] It can show the presence of hyperechoic solid material in the distended portal vein or its tributaries, the presence of collateral vessels or a cavernoma. Doppler imaging can confirm the absence of flow in part or whole lumen of the vein, and, if present, a cavernomatous transformation.[10] Recently, the use of endoscopic ultrasound (EUS) demonstrated to be 81% sensitive and 93% specific in PVT diagnosis.[11] and it can detect small and non-occluding thrombi. It is more reliable than computed tomography (CT) scans for diagnosis of portal invasion by tumors.[12].

PATIENTS AND METHODS

In this study, 75 patients having liver cirrhosis were included in which 46 patients (61.33%) were males and 29 patients (38.67%) were females. All patients had Doppler ultrasonography by same consultant radiologist for evidence of portal vein thrombosis. Patients of either gender between 20 to 70 years of age with following pre requisites: having Child Pugh class C and having liver cirrhosis due to any defined etiology were included in this study. However, patients having hepatocellular carcinoma and history of predisposition to thromboembolism were excluded from the study.

RESULTS

Seventy five patients were included in this study. The mean age of the patients was 51.6 years. The etiology of liver cirrhosis in all patients included in this study was determined which revealed that out of 75 patients, 44 (58.67%) had chronic hepatitis C, 23 (30.67%) had chronic hepatitis B, 5 (6.67%) had alcoholic liver disease, 2 (2.66%) had autoimmune hepatitis and 1 (1.33%) had Wilson's disease.

Doppler ultrasonography was done in these 75 patients to see incidence of portal vein thrombosis. The results indicated that PVT was present in 11 (14.7%) patients in which 7 patients (63.63%) were male while 4 (36.37%) were female. Figure 1 shows frequency of PVT according to different age groups. Figure 2 shows frequency of PVT according to different aetiologies.

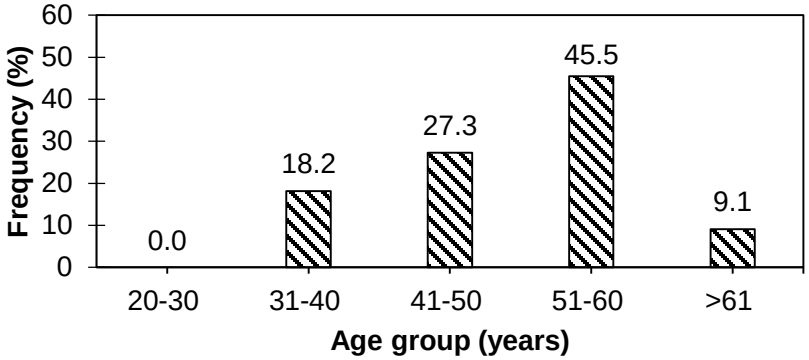

Figure 1: Frequency of portal vein thrombosis according to age group

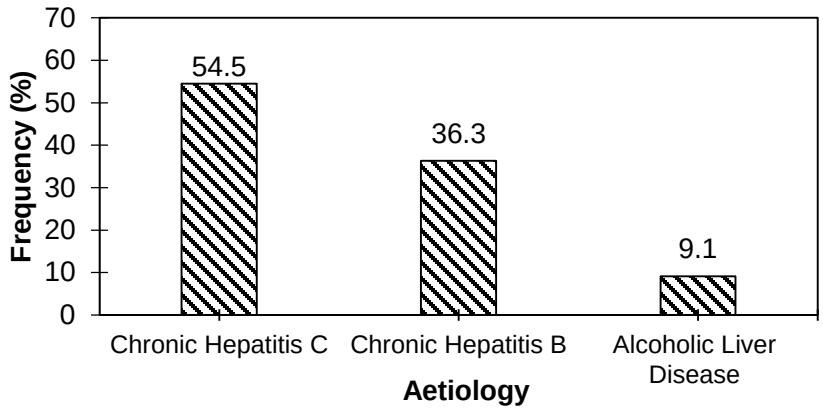

Figure 2: Frequency of portal vein thrombosis according to aetiology

DISCUSSION

During this study, frequency of PVT in patients with cirrhosis of liver was examined. This is one of the most comprehensive study for detection of portal vein thrombosis in patients with chronic liver disease in Pakistan. The development of portal vein thrombosis in patients with chronic liver disease is reported to about from 1-16% of patients in most of the studies.[13-16] The results of this study is equivalent to these international studies. In this study the incidence of PVT was found to be 14.67%. Out of 75 patients, 11 developed portal vein thrombosis and 07 of them (63.63%) were male and 04 were female (36.37%). Chen et al.[17] reported in a study conducted on 40 cirrhotic patients who developed portal vein thrombosis that male gender was associated with more chances of development of PVT which was 65% and it is similar to our study. Many risk factors detected in different studies can predispose to the development of PVT in patients with chronic liver disease. Few risk factors, such as age, gender, smoking status, alcohol intake, hypertension, and diabetes mellitus, were not associated with PVT in this study.

The hepatitis C was found to be the most important etiologic agent for the development of PVT in this study, 6 patients out of 11 who developed portal vein thrombosis were HCV positive (54.54%) while 4 patients (36.36%) were HBV positive. Korn et al.[18] conducted a study and found that HBV was the main etiologic agent in the development of portal vein thrombosis in cirrhotic patients. In this study HCV was the main agent, the reason is that hepatitis C being more prevalent in Pakistan than HBV. Furthermore, patients who were in Child Pugh class C were only included in this study.

It was also found that 5 out of 11 patients who developed portal vein thrombosis were in age group of 50 to 60 years, which was about 45.45%. To consider this as an independent risk factor for the development of portal vein thrombosis is difficult and it needs further evaluation. Patients with cirrhosis complicated by PVT have a significantly increased risk of death. Therefore, its early detection is beneficial for the patient. As portal vein thrombosis is also a contraindication for the liver transplantation so its early detection and management can help the patient.

Conclusion: Portal vein thrombosis is frequent in patients with liver cirrhosis. High index of suspicion and early identification will help in institution of appropriate therapy before potentially fatal complications ensue.

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