ORIGINAL ARTICLE

Frequency of Portal Vein Thrombosis in Patients with Liver Cirrhosis

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ABSTRACT

Aim: To determine the frequency of portal vein thrombosis in patients with liver cirrhosis.
Study design: Retrospective/Case-control
Place and duration of study: Department of Medicine, M. Islam Medical & Dental College Gujranwala from 1st April 2019 to 30th September 2020.
Methodology: One hundred patients of both genders were presented in this study. Patients detailed demographics age, sex and body mass index were recorded after taking written consent, Patients were aged between 20-75 years. Patients who had liver cirrhosis were included in this study. Complete patients were undergone for Doppler ultrasonography for observation of portal vein thrombosis.
Results: Out of 100 patients, 60 (60%) were males and 40(40%) patients were females. Mean age of the patients were 47.08±7.42 years with mean BMI 28.22±9.61kg/m^2. We found that 60(60%) patients had hepatitis C, 29 (29%) patients had hepatitis B, 7(7%) had chronic liver disease, 3 (3%) patients had autoimmune hepatitis and 1 (1%) patient had other disease (Wilson's).
Conclusion: The frequency of portal vein thrombosis was high among patients of liver cirrhosis and mostly patients of hepatitis C were affected.
Keywords: Liver cirrhosis, Portal vein, Thrombosis

INTRODUCTION

Liver cirrhosis is the final stage of chronic liver diseases and is associated with complications that endanger lives.[1,2] Different pathologies, including variceal bleeding, ascites and infection, affect the normal course of cirrhosis.[3,4] Child Pugh score; the end stage liver disease score model, and a variety of biochemical parameters including serum bilirubin, albumin, prothrombin time or a globally normalized ratio, creatinine and encephalopathy, and ascites is the key predictor for survival in patients with liver circrosis.[4,5] Recent evidence indicates that portal vein thrombosis (PVT) is related to the survival of liver cirrhosis patients.[6]

In addition to the location, (trunk, branches, or both), the degree (complete or incomplete) and the scale of involvement of the vein portal extra hepatic, the BAVENO VI working group[7] has recently added two more variables for the PVT classification. This is the type of disease underlying the liver (clinical and radiological features) (cirrhosis, non-cirrhotic liver disease, HCC, post-liver transplant). However, there is no comment even in this classification on the operational implications for the liver function of the PVT occlusion. Moreover, Sarin et al. have suggested a more detailed PVT classification scheme in cirrhosis that emphasizes PVT functionality (acute or chronic occlusion in diseased or stable liver consequences).[8]

Danaparoid sodium is a glycosaminoglycans on of the same starting content, porcine bowel mucosa, as unfrozen heparin and LMWH, but its extraction process removes fragments of heparin and heparin.[9] Danaparoid is a low molecular heparinoid made up of heparin (84%), dermatan sulfate (12%) and chondroitin sulfate (4%) respectively. The average weight of its components is around 6000 Da[9]. Their activity is well known in antithrombotics, catalyzed by danaparoid, Xa (FXa) and thrombin inactivation factors. As most LMWHs, the danaparoid has a higher catalytic effect on antithrombin (AT)-III inactivation of FXa than AT-III inactivation of thrombin.[10] The study's aim was to evaluate PVT clinical characteristics in hepatic cirrhosis patients.

Received on 17-12-2020
Accepted on 27-03-2021

PATIENTS AND METHODS

This retrospective/case-control study was conducted at Department of Medicine, M. Islam Medical & Dental College Gujranwala from 1st April 2019 to 30th September 2020 and comprised 100 patients. After taking written consent, detailed demographics including age, sex and body mass index were recorded. Patients who hadhepatocellular carcinoma, history of predisposition to thromboembolism and those were not agreed excluded. Hundred patients of both genders who had liver cirrhosis were included. Patients were aged between 20-75 years. All patients were undergone for Doppler ultrasonography for observation of portal vein thrombosis. Data was calculated in terms of frequencies and percentages. Complete data was analyzed by SPSS 24.0 version.

RESULTS

Sixty (60%) were males and 40(40%) patients were females. Mean age of the patients were 47.08±7.42 years with mean BMI 28.22±9.61kg/m^2. We found that 60 (60%) patients had hepatitis C, 29 (29%) patients had hepatitis B, 7(7%) had chronic liver disease, 3(3%) patients had autoimmune hepatitis and 1(1%) patient had other disease [Wilson's] (Table 1). Frequency of portal vein thrombosis

(PVT) was 15(15%) and majority of them were males 12(80%) and rest 3(20%) were females. Among these, 10(66.7%) had hepatitis C and 5(33.3%) patients had hepatitis B (Table 2)

Table 1: Baseline detailed demographics of presented cirrhosis patients (n=100)

Variable	No.	%
Gender		
Males	60	60.0
Females	40	40.0
Mean age (years)	47.08±7.42	
Mean BMI (kg/m^2)	28.22±9.61	
Types of Diseases		
Hepatitis C	60	60.0
Hepatitis B	29	29.0
Chronic liver disease	7	7.0
Autoimmune hepatitis	3	3.0
Wilson's disease	1	1.0

Table 2: Frequency of PVT with differentiation of hepatitis (n=100)

Variable	No.	%
Portal vein thrombosis		
Yes	15	15.0
No	85	85.0
Gender		
Males	12	80.0
Females	3	20.0
Types of hepatitis		
Hepatitis C	10	66.7
Hepatitis B	5	33.3

DISCUSSION

In the waiting list for the liver transplantation, PVT is a common complication of final stage liver disease. In our cirrhotic patients sample the overall prevalence for PVT was 15%, comparable to the 8%-25% prevalence recorded by other studies of liver transplantation patients.[11-15] PVT prevalence was as small as 0.6% in studies that involved less serious patients or used sonography only to diagnose PVT.[16]

In our study total hundred patients of both genders were presented with mean age47.08±7.42 years with mean BMI 28.22±9.61kg/m^2.60 (60%) patients were males and 40 (40%) patients were females. These were comparable to the previous studies conducted by Saleem et al.[17] They reported that 10 of 15 patients who developed portal venous thrombosis were HCV positive (66.7%), and 5 patients (33.3 %) were HBV positives, while Lertpipopmetha and Auewarakul[18] performed a study and found that HBV was the key etiological agent in the development. HCV was the most important etiological agent for this study.

It was also found that 8 out of 15 patients who developed portal vein thrombosis were in age group of 45-70 years, which was about 53.3%.Some previous studies have found that cirrhosis aetiology can have an effect on the prevalence of PVT in patients with the highest PVT rate of cirrhosis linked to the alcoholic and hepatitis B viruses.[18,19] The theoretical risk with cyanoacrylatic glue was higher than that with sclerotherapy in one study performed by Tripodi et al.[20] However, existing evidence was derived from small study case reports. Some recent studies have found correlations between the expression of PVT in cirrhotic patients in thrombopoietin receptor agonists.[21]

CONCLUSION

The frequency of portal vein thrombosis was high among patients of liver cirrhosis and mostly patients of hepatitis C were affected.

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