DOI: https://doi.org/10.53350/pjmhs22161155

ORIGINAL ARTICLE

Frequency of Thrombocytopenia and its Severity among patients of Chronic Liver Disease presenting to a Tertiary Care Hospital

ZARA MEHMOOD[1], CH. ADNAN AHMED ATHER[2], ZAHID HUSSAIN SHAH[3], QAMAR SAJAD[4], NAZIA FAROOQ[5], SAADIA CH[6]
[1]*Jinnah hospital, Lahore*
[2,4]*Department of Medicine, Fatima Jinnah Medical University, Sir Ganga Ram hospital, Lahore*
[3]*Department of Medicine, K.E. Medical University, Mayo hospital, Lahore*
[5,6]*Department of Pathology, Lahore Medical & Dental College, Lahore*
Correspondence to Prof. Saadia Chaudhry, Email: drsaadia75@gmail.com Cell: 0300-4527916

ABSTRACT

Background: Chronic liver disease is associated with various complications including thrombocytopenia.
Aim: To determine the frequency of thrombocytopenia and its severity among patients of chronic liver disease presented to a tertiary care hospital.
Study design: It was Cross-Sectional Study.
Study duration & setting: 7th December 2019 to 6th June 2020, Medical unit 2, Jinnah Hospital Lahore.
Methodology: After approval from hospital ethical committee 190 patients aged 15 to 70 years having chronic liver disease were enrolled. Written informed consent was taken frequency of thrombocytopenia was determined in all patients. Results were analyzed using SPSS 24.
Results: In our study total 190 patients were enrolled with mean age of 43.29±14.7 years. There were 36.3% patients in younger age group and 63.7% in elder age group. There were 46.8% male and 53.2% female patients. Thrombocytopenia was present 36.3% patients. Mild thrombocytopenia was present in 26.1%, moderate thrombocytopenia was present in 49.3% patients and severe thrombocytopenia was present in 24.6%.
Conclusion: Thrombocytopenia is very common Chronic Liver Disease patients and all patients should be screened for thrombocytopenia at time of admission
Keywords: Chronic liver disease, Thrombocytopenia, Male gender.

INTRODUCTION

Chronic liver disease (CLD) has emerged a major communicable disease worldwide over the last two decades[8]. According to various surveys conducted in Pakistan, the prevalence of chronic liver is reported to be as high as 44% in some regions, while the count is on a progressive rise[9]. This has led to further burden on the health system of the country due to CLD itself along with its treatment and long term complications[10].

Thrombocytopenia is characterized by a decrease in the platelet count of the patients below 1,50000 cell/mm3. Studies conducted on patients of CLD showed that thrombocytopenia are present in these patients but it has shown considerable variations. A study conducted in Pakistan reported frequency of thrombocytopenia among patients of chronic liver disease as 22.6% while another study reported its frequency as 32.3%[11,12]. Another study reported the frequency of thrombocytopenia as 57.8% overall in patients with CLD with 40.2% having mild, 48% having moderate and 11.6% having severe thrombocytopenia[13].

The rationale of this study is to determine the frequency of thrombocytopenia among patients of CLD presenting to a tertiary care hospital. Thrombocytopenias are usually asymptomatic in the patients of CLD in the initial stage and may present at a later stage with bleeding and associated co-morbidities. Thus it is highly recommended to screen these abnormalities at an earlier stage and treat them accordingly. Thus the results of this study will provide baseline information regarding burden of thrombocytopenia in patients of CLD and will generate evidence for further research regarding the factors causing these abnormalities and its management to reduce the associated mortality and morbidity.

The objective of the study was to determine the frequency of thrombocytopenia and its GRADE OF severity among patients of chronic liver disease presenting to a tertiary care hospital.

OPERATIONAL DEFINITION:

Cirrhotic liver disease: Evidence of coarse echotexture of liver on ultrasonography were be labeled as Cirrhotic liver disease. Patients diagnosed at least 6 months ago were enrolled

Thrombocytopenia: Platelet levels of < 1,50000 cells/mm3 were labeled as thrombocytopenia.

Received on 16-07-2021
Accepted on 26-12-2021

Severity of thrombocytopenia: Severity of thrombocytopenia were assessed on the basis of following criteria:

Mild: Platelet levels of 100,000 to 1,50000 cells/mm3 were labeled as mild.

Moderate: Platelet levels of 50,000 to 100,000 cells/mm3 were labeled as moderate.o**Severe:** Platelet levels of < 50,000 cells/mm3 were labeled as severe.

METHODOLOGY

It was cross-sectional study conducted in medical unit 2, Jinnah Hospital Lahore from 7th December 2019 till 6th June 2020 after permission from Hospital Ethical Review Board.

Inclusion criteria: All patients of both genders of CLD between age of 15-75 years

Exclusion criteria:

1. Patients on interferon therapy evaluated by history and medical record
2. Patients on chemotherapy determined on history and medical record.
3. Patients with malignancy determined on history and medical record.
4. Patients with Aplastic anemia determined on history and medical record.

Sample size of 190 cases was calculated with 95% confidence level, 6% margin of error and taking expected percentage of thrombocytopenia as 22.6% (least among all).[1] Non-Probability consecutive sampling technique was used. A total of 190 patients of CLD presenting to Jinnah Hospital Lahore and fulfilling the selection criteria were approached. An informed consent was taken from them before including them in the study. Information regarding demographic data and study variables was noted in the proforma. Blood samples were taken by following aseptic measures and standard protocol by the researcher and sent immediately to the pathology laboratory in standard CBC vials. Presence of thrombocytopenia and its severity was noted in the proforma as per operational definition. Data Confidentiality was ensured. Data was entered and analyzed using SPSS version 24.0. Numerical variable i.e., age is summarized as mean and standard deviation. Qualitative variables like gender, presence of thrombocytopenia and its severity are presented as frequency tables. Data is stratified for age, gender, duration of disease and cause of chronic liver disease. Statistical significance was checked

by Chi square test after stratification & p value < 0.05 was used as statistically significant.

RESULTS

In our study total 190 patients were enrolled with mean age of 43.29±14.7 years. There were 36.3% patients in younger age group and 63.7% in elder age group. There were 46.8% male and 53.2% female patients. Thrombocytopenia was present 36.3% patients (Table 1). Mild thrombocytopenia was present in 26.1%, moderate thrombocytopenia was present in 49.3% patients and severe thrombocytopenia was present in 24.6% (Fig. 1). Viral cause of CLD was present in 60.5% patients and non-viral cause was present in 39.5% patients. Data stratification was not significant for age groups, p-value 0.768. Thrombocytopenia was more common in male as compared to female patients, p-value<0.001. There was no association of thrombocytopenia with duration of CLD, p-value 0.064 (Table 2). Thrombocytopenia was more common in patients of viral CLD, p-value <0.001.

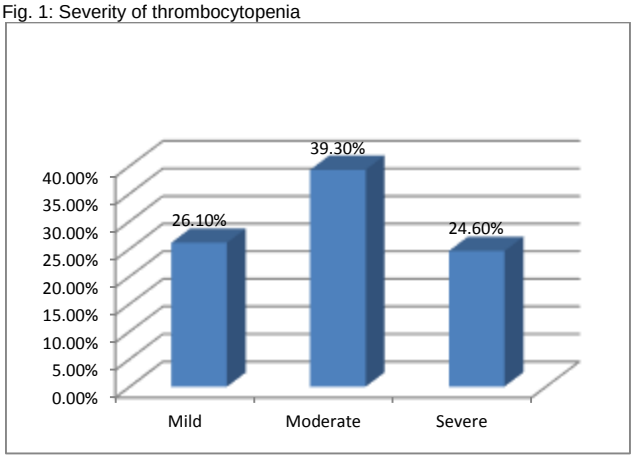
Table 1: Frequency of thrombocytopenia

Valid	Frequency	Percent
Yes	69	36.3
No	121	63.7
Total	190	100.0

Table 2: Data stratification for duration of disease

Duration of CLD		Thrombocytopenia		Total
		Yes	No	
Less than 12 months	Count	41	55	96
	%within duration of CLD	42.7%	57.3%	100%
More than 12 months	Count	28	66	94
	%within duration of CLD	29.8%	70.2%	100%
Total	Count	69	121	190
	%within duration of CLD	36.3%	63.7%	100%
p-value 0.064				

Fig. 1: Severity of thrombocytopenia



DISCUSSION

In our study total 190 patients were enrolled with mean age of 43.29±14.7 years. There were 36.3% patients in younger age group and 63.7% in elder age group. There were 46.8% male and 53.2% female patients. Thrombocytopenia was present 36.3% patients. Mild thrombocytopenia was present in 26.1%, moderate thrombocytopenia was present in 49.3% patients and severe thrombocytopenia was present in 24.6%. Viral cause of CLD was present in 60.5% patients and non-viral cause was present in 39.5% patients. Data stratification was not significant for age groups, p-value 0.768. Thrombocytopenia was more common in male as compared to female patients, p-value<0.001. There was no association of thrombocytopenia with duration of CLD, p-value 0.064. Thrombocytopenia was more common in patients of viral CLD, p-value <0.001.

Thrombocytopenia was more frequently present in Patients of sever chronic liver disease.[2]In patients of cirrhosis, thrombocytopenia is observed in up to 64% of patients and is independent of the cause of cirrhosis[3]. Patients with end-stage chronic liver disease show a tendency to have higher degree of thrombocytopenia as compared to compensated chronic liver disease.[4]Low Platelet counts (<150000/μL) are usually noted in patients with cirrhosis than patients without cirrhosis (64% & 6%, respectively)[3 low platelet counts (<100000/μL) are observed in about one-quarter to one-half of patients with cirrhosis. [72] Platelet counts <50000/μL more commonly observed in approximately 1% of patients with chronic
Hepatitis-C Virus infection[2.]

Nezam et al[5] stated that Thrombocytopenia (less than 150,000/μL) was a very frequent complication in patients of CLD & was observed in up to 77% of patients. Moderate Thrombocytopenia (50,000/μL–75,000/μL) was noted in approximately 13% of cirrhotic patients. There was a strong association between chronic liver disease and thrombocytopenia in 58% patients coming to the OPD in all the hospitals[6] In recent study[7] published in 2020, most common cause of liver disease was observed as viral infection (48%), alcoholic liver disease (24%) followed by NAFLD (20%). In the cirrhosis group, males had a mean platelet count of 210000 decreasing to 170000/μL *vs* females, with a mean number of platelets 250000 decreasing to 215000/μL. However, despite sex differences, the tendency of gradual decline in platelet count after the diagnosis of cirrhosis was noted in both sexes. Additional sub-groups were made to analyze that whether age factor had any modifying impact within each sex category. It was observed that in younger patients (aged 17-40 years), platelet count was usually constant in both male and female patients, however in older patients, there was a tendency of gradual decline in platelet count in both sexes prior to diagnosis of cirrhosis.

CONCLUSION

Thrombocytopenia is more very common in males as compared to females and viral cause of CLD has greater prevalence of thrombocytopenia as compared to non-viral cause.

Conflict of interest: Nil

REFERENCES

1. Oka Y, Tashiro H, Sirasaki R, Yamamoto T, Akiyama N, Kawasugi K, et al. Hyperuricemia in Hematologic Malignancies Is Caused by an Insufficient Urinary Excretion. Nucleosides, Nucleotides and Nucleic Acids. 2014 Apr 4;33(4–6):434–8.
2. Wang CS, Yao WJ, Wang ST, Chang TT, Chou P. Strong association of hepatitis C virus (HCV) infection and thrombocytopenia: implications from a survey of a community with hyperendemic HCV infection. Clin Infect Dis 2004; 39: 790–6.
3. Bashour FN, Teran JC, Mullen KD. Prevalence of peripheral blood cytopenias (hypersplenism) in patients with nonalcoholic chronic liver disease. Am J Gastroenterol 2000; 95: 2936–9.
4. Giannini EG, Botta F, Borro P. Application of the platelet count/spleen diameter ratio to rule out the presence of oesophageal varices in patients with cirrhosis: a validation study based on follow-up. Dig Liver Dis 2005; 37: 779–85.
5. Afdhal N, McHutchison J, Brown R, Jacobson I, Manns M, Poordad F, Weksler B, Esteban R. Thrombocytopenia associated with chronic liver disease. J Hepatol. 2008 Jun;48(6):1000-7.
6. Hancox SH, Smith BC. Liver disease as a cause of thrombocytopenia. QJM. 2013;106:425–431.
7. Gotlieb N, Schwartz N, Zelber-Sagi S, Chodick G, Shalev V, Shibolet O. Longitudinal decrease in platelet counts as a surrogate marker of liver fibrosis. World J Gastroenterol. 2020 Oct 14;26(38):5849-5862.