

Research Article

Frequency of thrombocytopenia in cases of hepatitis C infection

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ABSTRACT

Objective: To find out frequency of thrombocytopenia in cases of hepatitis C infection.

Material and methods: This cross sectional study was conducted at Department of Pathology, Quaid-e-Azam Medical College, Bahawalpur from February 2018 to August 2018 over the period of 6 months. Total 100 diagnosed (by Anti HCV +ve by ELIZA (4th generation, cut off : >0.328) cases of hepatitis C infection (either male and female) having age >20 years admitted in Medical wards of Bahawal Victoria Hospital, Bahawalpur were selected.

Results: Total 130 patients were selected in this study. Mean age of the patients was 45.99 ± 9.996 years and mean duration of disease was 6.17 ± 3.211 years. Thrombocytopenia was found in 76 (58%) patients. Thrombocytopenia was found in 41 (63.08%) patients of age group 30-45 years and in 35 (53.85%) patients of age group 46-60 years. Male patients were 78 (60%) and female patients were 52 (40%) and thrombocytopenia was noted in 49 (62.82%) male patients and in 27 (51.92%) female patients.

Conclusion: Results of present study revealed a higher percentage of thrombocytopenia in cases of hepatitis C infections. Most of the patients infected with hepatic C infection were male but development of thrombocytopenia was not associated with gender. Results also showed insignificant association of thrombocytopenia with age group and duration of disease.

Key words: Thrombocytopenia, Hepatitis C, cirrhosis, CLD

INTRODUCTION

Hepatitis C is an infectious disease primarily affecting the liver, caused by the hepatitis C virus (HCV).¹ HCV is an important causative factor in the etiology of fibrosis, cirrhosis, and hepatocellular carcinoma (HCC).² The world health organization (WHO) has estimated that worldwide approximately 185 million people are infected with HCV, of which 3 - 4 million are new cases. Two-thirds of these newly infected patients develop chronic liver disease.³ In Pakistan,

approximately 10 million people are documented as being infected with HCV, with infection rates as high as 2.2% - 14%.⁴⁻⁵

Thrombocytopenia, (platelet count less than $150 \times 10^9/1.5$) is a common complication in patients with chronic liver disease, that has been observed in 76% of the patients. The severity of thrombocytopenia can be variable either from being transient and isolated, to a severe, life threatening condition.⁶⁻⁷

The cause is multifactorial due in part to increased sequestration in the spleen, bone marrow suppression by HCV infection and by interferon treatment, and reduced production of thrombopoietin (a cytokine that regulates megakaryocyte maturation and platelet production).⁸ Prolonged bleeding time, and impaired aggregation, reduced adhesiveness and abnormal ultra structure of platelets reflect abnormal platelet function; these abnormalities have been attributed to an intrinsic platelet defect.⁸ Liver is the main site for the production of thrombopoietin (TPO). Thrombopoietin is a glycoprotein, and a major regulator of megakaryopoiesis and platelet production in the body. Thrombopoietin levels and platelet counts are highly correlated with liver function impairment and severity of hepatic fibrosis in chronic HCV infection.⁹ Serum cryoglobulin and cardiophilin antibodies are also frequently seen in HCV related thrombocytopenia.¹⁰

The aim of this study is to evaluate the burden of thrombocytopenia in Chronic Hepatitis C infection. This study will be helpful in planning further treatment strategies in patients with CHC infection to prevent bleeding complications like hematemesis, melena etc.

MATERIAL AND METHODS

This cross sectional study was conducted at Department of Pathology, Quaid-e-Azam Medical College, Bahawalpur from February 2018 to August 2018 over the period of 6 months. Total 100 diagnosed (by Anti HCV +ve by ELIZA (4th generation, cut off : >0.328) cases of hepatitis C infection(either male and female) having age >20 years admitted in Medical wards of Bahawal Victoria Hospital, Bahawalpur were selected. Exclusion criteria were age less than 20 years, CLD patients with both Anti HCV & HepBs Ag +ve, patient with recent history of febrile illness and patients with significant drug history that is known to cause thrombocytopenia like interferon etc. Study was approved by ethical committee of the hospital. Written informed consent was taken

from every patient. History was taken from all the selected patients. 10cc blood was collected and sent to laboratory for Platelet count, PT (Prothrombin Time) INR, Serum Albumin, LFT (Liver Function Test) to detect thrombocytopenia. Patients with platelet count of < 150000/mm³ was labeled as having thrombocytopenia. All the collected data was entered in pre-designed proforma along with demographic profile of the patients.

Data was analyzed by using SPSS version 20. Mean and SD was calculated for numerical data and frequencies were calculated for categorical data. Chi-square test was used as test of association. P value ≤0.05 was considered as statistically significant.

RESULTS

Total 130 patients were selected in this study. Mean age of the patients was 45.99 ± 9.996 years and mean duration of disease was 6.17 ± 3.211 years. Out of 130 patients of hepatitis C infection, thrombocytopenia was found in 76 (58%) patients. (Fig. 1) Patients were divided into two age groups i.e. age group 30-45 years and age group 46-60 years. Total 65 (50%) patients belonged to age group 30-45 years and thrombocytopenia was found in 41 (63.08%). In age group 46-60 years, out of 65 (50%) patients, thrombocytopenia was noted in 35 (53.85%) patients. Insignificant association of thrombocytopenia with age group was noticed with p value 0.374. (Table 1)

Male patients were 78 (60%) and female patients were 52 (40%) and thrombocytopenia was noted in 49 (62.82%) male patients and in 27 (51.92%) female patients. Statistically insignificant association between gender and thrombocytopenia was observed with p value 0.276. (Table 2)

Minimum duration of disease was 1 year and maximum duration of disease was 10 years. Patients were divided into two groups according to duration of disease i.e. 1-5 years and 6-10 years. Total 54 (41.54%) patients belonged to 1-5 years group and 76 (58.46%) patients belonged to 6-10 years group. Thrombocytopenia was found

in 27 (50%) patients of 1-5 years group and 49 (64.47%) patients of 6-10 years group. There was no association was found between duration of

disease and thrombocytopenia with p value 0.108. (Table 3)

Fig. 1: Frequency of Thrombocytopenia

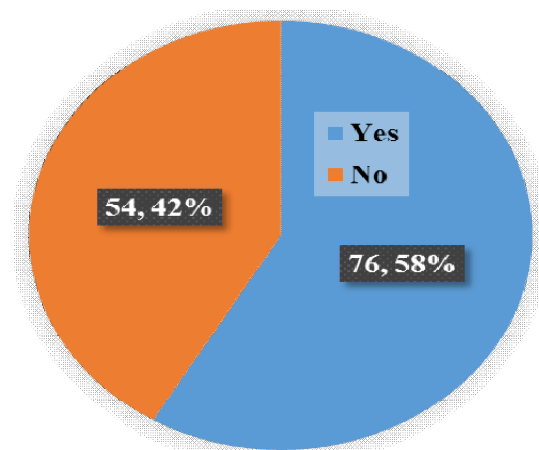


Table 1: Association of Thrombocytopenia with age group

Age Group	Thrombocytopenia		Total	P value
	Yes	No		
30-45	41 (63.08%)	24 (36.92%)	65 (50%)	0.374
46-60	35 (53.85%)	30 (46.15%)	65 (50%)	
Total	76 (58%)	54 (42%)	130	

Table 2: Association of Thrombocytopenia with gender

Gender	Thrombocytopenia		Total	P value
	Yes	No		
Male	49 (62.82%)	29 (37.18%)	78 (60%)	0.276
Female	27 (51.92%)	25 (48.08%)	52 (40%)	
Total	76 (58%)	54 (42%)	130	

Table 3: Association of Thrombocytopenia with Duration of disease

Duration of disease	Thrombocytopenia		Total	P value
	Yes	No		
1-5	27 (50%)	27 (50%)	54 (41.54%)	0.108
6-10	49 (64.47%)	27 (35.53%)	76 (58.46%)	
Total	76 (58%)	54 (42%)	130	

DISCUSSION

Hepatitis C virus (HCV) is considered to be the main etiological factor for chronic liver disease and accounts for about 70 – 75% cases of chronic hepatitis and 15 –20% cases of cirrhosis and hepatocellular carcinoma.¹¹ Viral hepatitis is highly endemic in Pakistan. Pakistan carries one of the world’s highest burdens of chronic hepatitis and mortality due to liver failure and hepatocellular carcinomas. Although, prevalence of and risk factors for hepatitis B and hepatitis C

are not exactly available, a weighted average of hepatitis C prevalence was 3.0%.¹² CAH is associated with hematological side effects. These side effects are due to the disease itself, therapy related and also occur as a result of its complications.¹³ Thrombocytopenia, (platelet count less than 150×10⁹/l) is a common complication in patients with chronic liver disease, that has been observed in 76% of the patients.¹⁴ The severity of thrombocytopenia can be variable either from being transient and isolated, to a severe, life threatening condition.¹⁵

The cause is multifactorial due in part to increased sequestration in the spleen, bone marrow suppression by HCV infection and by interferon treatment, and reduced production of thrombopoietin (a cytokine that regulates megakaryocyte maturation and platelet production).¹⁴ Prolonged bleeding time, and impaired aggregation, reduced adhesiveness and abnormal ultra structure of platelets reflect abnormal platelet function; these abnormalities have been attributed to an intrinsic platelet defect.¹⁴

The purpose of present study was to find out the frequency of thrombocytopenia in cases of hepatitis C infection. Mean age of the patients was 45.99 ± 9.996 years and mean duration of disease was 6.17 ± 3.211 years. Out of 130 patients of hepatitis C infection, thrombocytopenia was found in 76 (58%) patients.

In one study by Nawaz et al,¹⁶ Out of 141 patients, thrombocytopenia was present in 53% patients of hepatitis C infection which is in agreement with our findings. The average age of patients was 47.25 ± 11.52 years which is also comparable with our study. In another study by AZIZ et al,¹⁷ thrombocytopenia was seen in 22.6% of patients which is much lower than our findings. A study by Wang et al¹⁸ reported frequency of thrombocytopenia as 10.2% among anti-HCV-positive subjects. Iman et al¹⁹ found thrombocytopenia in chronic liver disease due to hepatitis C virus as 32.3%. In present study 50% patients of both age groups had thrombocytopenia and most (62.82%) of the male patients found with thrombocytopenia. Similarly Nawaz et al¹⁶ had found thrombocytopenia in 57.3% male patients. In same study most of the patients belonged to age group 51-60 years. In a study conducted in Tehran,²⁰ the prevalence of thrombocytopenia was found to be 13.3%. In same study, males were more effected than females. Local study of Peshawar had no difference in proportion of thrombocytopenia among males and females. This could be due to small sample size in the study.¹⁹

CONCLUSION

Results of present study revealed a higher percentage of thrombocytopenia in cases of hepatitis infections. Most of the patients infected with hepatic C infection were male but development of thrombocytopenia was not associated with gender. Results also showed insignificant association of thrombocytopenia with age group and duration of disease.

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