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Research Article

### PREVALENCE OF THROMBOCYTOPENIA IN HEPATITIS B AND HEPATITIS C PATIENTS.

<sup>1</sup>Dr. Sobia Hina, <sup>2</sup>Prof. Dr. Jameel Ahmed, <sup>3</sup>Dr. Saqib, <sup>4</sup>Dr. Syed Zafar Iqbal<sup>1</sup>Baqai Medical University, Karachi, Pakistan.<sup>2</sup>Professor of Medicine, Baqai Medical University, Karachi, Pakistan<sup>3</sup>Assistant Professor of Medicine, Baqai Medical University, Karachi, Pakistan.<sup>4</sup>Consultant Physician, THQ Hospital, Sadiqabad, Rahim Yar Khan, Pakistan

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**Abstract:****Objective:** To evaluate the prevalence of thrombocytopenia in Hepatitis B and Hepatitis C Patients**Study Design:** This is an observational study.**Setting:** Study carried out at Medicine department Baqai University hospital Karachi, from Jan 2020 to Dec 2020.**Material & Method:** 200 Participants of the study included patients with active hepatitis B or hepatitis C infection visiting OPD of the hospital. We recorded liver function tests and platelet count from the patient's laboratory reports. In this study, they defined thrombocytopenia as platelet counts below 150,000/ $\mu$ l. Those patients on immunosuppressive therapy, splenomegaly, ascites, esophagyal varices and cirrhosis were excluded. Chronic hepatitis C was diagnosed on the basis of molecular assay by qualitative RT-PCR. The diagnosis of chronic active hepatitis B was made on positive HBs Ag for more than six months.**Results:** We received 104(52%) patients were male and 96(48%) patients were female with mean age 49.64 $\pm$ 9.03 years. We found mostly patients were affected by Hepatitis C 168(84%) cases, followed by Hepatitis B in 16(8%) and combined infection in 16(8%). We found thrombocytopenia in a long duration of infection; 92 (46%) cases were 1 to 3 years. We observed thrombocytopenia in 72(36%) cases and mostly affected by hepatitis C.**Conclusion:** We conclude that the prevalence of thrombocytopenia in patients with chronic HCV infection is more than the chronic HBV infected patients but in patients where both the infections are present the percentage of the thrombocytopenia is same as that of chronic HBV infected patient alone.**Key Words:** Thrombocytopenia, Hepatitis B, Hepatitis C**Corresponding author:****Dr. Syed Zafar Iqbal,**Consultant Physician, THQ Hospital,  
Sadiqabad, Rahim Yar Khan, Pakistan

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**INTRODUCTION:**

The thrombocytopenia is characterized by abnormally low platelet levels and is the most common cause of coagulopathies which may be caused by various conditions like vitamin B12 deficiency, leukemia, myelodysplastic syndrome, sepsis and aplastic anemia etc. [1] Out of all these conditions the association of thrombocytopenia to HCV and HBV infected patients is the prime concern of this study as it is presenting in most of the chronic HCV and HBV patients. [2] Thrombocytopenia is one of the most prevalent extra-hepatic manifestations in chronic hepatitis C patients among various others like hypersplenism, portal hypertension, autoimmune reaction against the platelets, platelets infections and production of megakaryocytes by hepatitis C virus. [3] Cirrhosis is reported in end stage liver disease in patients with HCV, at first it was said that the thrombocytopenia is present in cirrhotic liver disease in these patients but now it is also found in patients without the cirrhotic liver.[4] HCV stands solely strong in causing thrombocytopenia even in the patients without liver cirrhosis as reported in various studies over the years in multiple parts of the world especially in south east Asia.[5,6] This important extra-hepatic manifestation associated with HCV infection is also associated with HBV infection. Multiple studies over the prevalence of HCV and HBV among the Pakistani population are present but hardly any study authenticating the prevalence of thrombocytopenia is available. [7] According to statistics of some studies the total approximation of chronic HCV and HBV prevalence is 500,000 and 3,000,000 people in Pakistan

respectively. So we aimed to study the prevalence of thrombocytopenia in the patients with chronic HCV and chronic HBV patients.[8]

**MATERIAL AND METHODS:**

This is an observational study from Jan 2020 to Dec 2020, all consecutive patients with chronic hepatitis B and C referred to Baqai University hospital Karachi were enrolled in to the study. We recorded liver function tests and platelet count from the patients laboratory reports. In this study, they defined thrombocytopenia as platelet counts below 150,000/ $\mu$ l. All patients were treatment naive. Those patients on immunosuppressive therapy, splenomegaly, ascites, esophageal varices and cirrhosis were excluded. Chronic hepatitis C was diagnosed on the basis of molecular assay by qualitative RT-PCR. The diagnosis of chronic active hepatitis B was made on positive HBs Ag for more than six months.

**RESULTS:**

In our study out of 200 patients 104(52%) patients were male and 96(48%) patients were female with mean age  $49.64 \pm 9.03$  years (Table No.1). We found mostly patients were affected by Hepatitis C 168(84%) cases, followed by Hepatitis B in 16(8%) and combined infection in 16(8%). We found thrombocytopenia in a long duration of infection; 92 (46%) cases were 1 to 3 years. We observed thrombocytopenia in 72(36%) cases and mostly affected by hepatitis C (Table No.2 and 3).

**Table 1: DEMOGRAPHIC VARIABLES.**

N=200		
Variable	No. Patients	Percentage
<b>Gender</b>		
• Male	104	52%
• Female	96	48%
<b>Age ( Means)</b>	49.64±9 .03 years	
<b>Infection</b>		
• Hepatitis B	16	8%
• Hepatitis C	168	84%
• BOTH	16	8%
<b>Duration of disease</b>		
• <1 year	8	4%
• 1 to 3 years	92	46%
• 4 to 6 years	56	28%
• ≥ 7 years	44	22%
<b>Thrombocytopenia</b>		
• Present	72	36%
• Absent	128	64%

**TABLE 2: THROMBOCYTOPENIA ACCORDING TO INFECTION.**

N=200

Thrombocytopenia	Infection		
	Hepatitis B	Hepatitis C	Hepatitis B & C
☐ Present	4(2%)	60(30%)	8(4%)
☐ Absent	12(6%)	108(54%)	8(4%)

**TABLE 3: THROMBOCYTOPENIA ACCORDING TO DURATION OF DISEASE**

N=200

Thrombocytopenia	Duration of disease			
	<1 years	1 to 3 years	4 to 6 years	>7 years
☐ Present	8(4%)	16(8%)	24(12%)	24(12%)
☐ Absent	0(0%)	76(38%)	32(16%)	20(10%)

**DISCUSSION:**

Thrombocytopenia is one of the prime importance in hepatitis C and hepatitis B patients because of the sudden bleeding episodes leading to death and increasing the overall mortality rate at medical wards [9,10]. Some of the prior studies have shown that thrombocytopenia is regularly noticed in chronic hepatitis C patients supposing attributed by some pathogenic mechanisms.[11] To be précised either the platelets are not forming properly or being destroyed in enormous quantity. On number one it is considered

that HCV may contain a direct pathogenic impact on platelet destruction.[12] Some suggest that In the patients with cirrhosis platelets sequestration by enlarged spleen because of portal hypertension may produce thrombocytopenia.[13] However, thrombocytopenia is found in the patients with hepatitis C and HBV irrespective to cirrhosis. Autoimmune reaction against platelets can also be considered as another mechanism responsible for thrombocytopenia.[14] Few reports have shown that destruction of platelets reticulo-endothelial system

may be considered as declaration of platelets-associated immunoglobulin G (PAIgG) in HCV patients. [15,16] With HCV infection the presentation of mild thrombocytopenia i.e platelet count  $>150,000/\mu\text{l}$  is between 41-50% where as severe thrombocytopenia i.e platelet count  $< 50,000/\mu\text{l}$  is observed in %9.[17] On the other hand the studies from multiple countries have reported that in patients with chronic thrombocytopenia prevalence of HCV is about 85% Furthermore, the PAIgG associated thrombocytopenia is more widespread in chronic HBV infected patients.[18] In our study, thrombocytopenia was found in 4(2%) HBV, 60(30%) HCV and 8(4%) in both HCV and HBV infected patients respectively, which is a significant amount of patients to authenticate the results of prevalence. These results are somewhat parallel to as reported in various prior studies.[19] Our study with the former mentioned prevalence results also authenticate that among the huge number of patients with thrombocytopenia the cause can be both HCV and HBV irrespective to presence or non-presence of liver cirrhosis[20]. The prevalence of thrombocytopenia was 52% in males and 48% in females  $49.64\pm 9.03$  years with the mean age of according to our study similar to as reported by Duran JM, Cretel E, et al.[21,22] Furthermore we also checked out the association of duration the disease with the prevalence of thrombocytopenia which came out to be 4% , 46% ,28% and 22% at  $<1$  year , 1-3years ,4-6 years and  $> 7$  years respectively making the peak thrombocytopenia to be between 1-3 years of the disease. Some previous studies report the peak thrombocytopenia after 5 years of the disease.[23,24] Hence we propose screening both HBV and HCV in patients presenting with thrombocytopenia irrespective to even sign and symptoms of liver cirrhosis similar to as elicited by Zali MR, Mohammad K, Farhadi A, et al. and Pawlowsky J.M, Bouvier M, et al. [17,25] Furthermore we also attribute the presence of thrombocytopenia to hypersplenism caused by liver cirrhosis and portal hypertension. As cirrhotic patients were in our exclusion criteria , so other mechanisms described earlier are the main cause of thrombocytopenia according to our study.

### CONCLUSION:

We conclude that the prevalence of thrombocytopenia in patients with chronic HCV infection is more than the chronic HBV infected patients but in patients where both the infections are present the percentage of the thrombocytopenia is same as that of chronic HBV infected patient alone. Furthermore, we endorse the serological testing of the patients presenting with

thrombocytopenia for both HCV and HBV infection irrespective to the presence of symptoms and signs of HCV and HBV infection.

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