

COMPARISON OF THROMBOCYTOPENIA IN CHRONIC HEPATITIS C PATIENTS WITH AND WITHOUT CIRRHOSIS

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ABSTRACT

Background: Thrombocytopenia may be one of the manifestation of chronic hepatitis infection. **Objective:** To assess thrombocytopenia in patients with chronic hepatitis C with and without cirrhosis. **Methodology:** Study Design: Cross Sectional study; Place and Duration: Department of Gastroenterology at Sheikh Zayed Hospital Lahore from 1st January 2009 to 28th February 2010. One hundred known patients of HCV in which 64 male and 36 were females with chronic hepatitis C confirmed HCV (RNA) positive. Among these fifty had chronic hepatitis C with cirrhosis, 50 without cirrhosis and 30 normal HCV negative individuals for comparison. All patients were analyzed for Hemoglobin, total leukocyte count and platelet count and ultrasound findings of with imaging for liver cirrhosis. Data was analyzed in statistical program SPSS version 16.0. **Results:** The results of this study have shown that there was a significant difference of mean platelets count. Platelets of patients with cirrhosis have mean platelets 88.25 ± 25.39 with mean age 50.33, mean platelets of patients with chronic hepatitis C without cirrhosis have 142.68 ± 50.69 with mean age 40.93 and mean platelets of control group was 265.30 ± 34.55 ($P < .001$) with mean age 39.07 years. **Conclusion:** Our study suggested that chronic hepatitis C is associated with thrombocytopenia. As the disease advances, the platelet count significantly decreases.

Key words: Chronic Hepatitis C, Thrombocytopenia, Platelets, Liver Fibrosis, HCV

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INTRODUCTION

Hepatitis C is a major health problem found in Pakistan and 120–130 million individuals are infected by HCV worldwide. The risk of developing chronic hepatitis C infection after an acute episode is quite high and 80% of patients remain HCV-RNA positive, and majority have persistently elevated liver enzymes.¹ Thrombocytopenia is one of the extra hepatic manifestations of HCV infection. Several mechanisms have been proposed to account for thrombocytopenia in these patients.²⁻⁵ Derangement in haematological parameters specially platelets significantly decreased most commonly in chronic hepatitis C.^{6,7} Chronic hepatitis C associated thrombocytopenia may be the result of pathological processes by Bone marrow suppression due to direct HCV infection of megakaryocytes decreased thrombopoietin secretion and due to interferon therapy.^{8,9} As the liver disease advances, the platelet count decreases and this fact may be related to a decrease in thrombopoietin production in the hepatocytes. A decreased thrombopoietin could thus explain thrombocytopenia. Because thrombopoietin is produced mainly by hepatocytes, liver damage causes a decrease of thrombopoietin secretion

which leads to a decrease bone marrow megakaryocytes stimulation and thereby causes thrombocytopenia.¹⁰ This study was planned to compare thrombocytopenia in chronic hepatitis C patients with and without cirrhosis.

METHODOLOGY

In present cross sectional study 100 patients in which 64 males and 36 were females (age range 23-52 years) with chronic hepatitis C and 30 healthy subjects also included in this study from comparison. A medical history and physical examination, followed by laboratory data including complete blood count, coagulation parameters, liver function tests were obtained. The degree of thrombocytopenia was analyzed in patients of chronic hepatitis C without cirrhosis and with cirrhosis. The liver involvement and cirrhosis was evaluated with abdominal ultrasonography and radiological imaging. The patients were divided into 3 groups: In group A patients with cirrhosis, in group B patients were without cirrhosis having chronic hepatitis C and in group C normal healthy subjects were included. Data was analyzed by statistical program SPSS version 16.0. ANOVA test was applied to compare mean in three groups and P value of less than 0.05 was taken as significant.

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RESULTS

One hundred and thirty study subjects were included in this study. 50 patients with chronic Hepatitis C having cirrhosis, 50 without cirrhosis and 30 normal subjects without HCV infection and cirrhosis were included in this study. 64% of study subjects were male and 36% female. Overall mean age of study subjects was 38 ± 4 years, in group A, mean age was 50 ± 3 years, in group B, 41 ± 5 years and in group C, 39 ± 3 years. The platelet count varied between 3 groups. Platelets of patients with cirrhosis have mean platelets 88.25 ± 25.39 , mean platelets of patients with chronic hepatitis C without cirrhosis was 142.68 ± 50.69 and mean platelets of control group was 265.30 ± 34.55 ($P < .001$).

Table I: Platelets count of three groups having HCV infection with cirrhosis, without cirrhosis and control group

| Group A | Group B | Group C | P-value |
|---|--|---|---------|
| Platelets count HCV infective patients with cirrhosis [Mean \pm SD] | Platelets count with chronic HCV infection without cirrhosis [Mean \pm SD] | Platelets count of control. [Mean \pm SD] | <.001 |
| 88.25 \pm 25.39 | 142.68 \pm 50.69 | 265.30 \pm 34.55 | <.001 |

DISCUSSION

Thrombocytopenia usually occurs in chronic HCV infection and cirrhotic patients and is often aggravated during antiviral therapy. In clinical trials, incidence became severe during treatment, thrombocytopenia was 3-5% in patients with chronic HCV.¹¹⁻¹³ In a study, severe thrombocytopenia occurred more frequently (12-18%) in patients with baseline thrombocytopenia.¹¹ It is reported that patients with baseline thrombocytopenia were vulnerable to severe thrombocytopenia.^{14,15} Variable degree of thrombocytopenia occur in patients with less than $<100,000$ platelets/ μ L and in patients with $100,000$ - $130,000$ platelets/ μ L. The same association was reported in a study. In our study, we found reduction in platelets of with cirrhosis have mean platelets 88.70 ± 25 which is less than control group with mean 265.30 ± 34 and patients with chronic hepatitis C without cirrhosis the mean value was 142.70 ± 50 which is less than control group. The stage of fibrosis and cirrhosis

was directly related to the decrease in platelet count in some studies.^{14,15} This fact was also pointed out by another study.¹⁶ The platelet count was observed to be lower in HCV positive patients. This is in favor of many published studies that thrombocytopenia is an early diagnostic indicator for HCV infection.¹⁷ Thrombocytopenia in HCV patients can worsen with disease progression.

CONCLUSION

Our data has shown that chronic hepatitis C is associated with thrombocytopenia. There is an association between thrombocytopenia and the severity of liver disease. More studies are needed to further evaluate thrombocytopenia in these patients and necessary measures should be taken to reduce the morbidity and mortality.

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