Clinicopathological Profile of Thrombocytopenia in Sitapur and Shahjahanpur Districts of Uttar Pradesh

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ABSTRACT

Introduction: Thrombocytopenia is common haematological finding with different specific etiologies. The aim of present study was to find clinicopathological correlation of thrombocytopenia in adults by causes, severity and clinical presentation.

Material and Methods: This was a cross sectional study done for a period of 6 months. After clinical profile laboratory data and complications of patients with a platelet count of less than 1,50,000 were analyzed and tabulated.

Results: The total sample size was 135 with 95(70.37%) males and 40 (29.63%) females. Out of 135 patients, 32(23.70%) were diagnosed dengue. Malaria was found in 20% patients. Most cases were presented with fever(56%) followed by bodyache (40.74%), joint pain(33.33%), bleeding (17.03%) and hepatosplenomegaly(15.55%).

Conclusion: Infectious diseases were the most common cause of thrombocytopenia out of which dengue was commonest followed by malaria and typhoid. Early recognition and diagnosis of cause of thrombocytopenia can avoid bleeding manifestations and serious complications.

Keywords: Thrombocytopenia, Bleeding, Dengue, Malaria, ITP.

INTRODUCTION

Thrombocytopenia is a condition of platelet count below 1,50,000/mL. It is mild if counts are between 60,000 and 1,50,000/mL, moderate if between 20,000 and 60,000/mL, and severe if less than 20,000/mL. Patients with a platelet count greater than 50,000/mL generally asymptomatic. Patients with a platelet count from 30,000 to 50,000/mL rarely present with purpura but they may have excessive bleeding with trauma. Counts from 10,000 to 30,000/mL may cause bleeding with minimal trauma, and counts less than 10,000/mL has risk of spontaneous bleeding, petechiae, and bruising. Spontaneous bleeding (i.e., mucosal, intracranial, gastrointestinal, and genitourinary bleeding) is more likely in patients with platelet counts less than 5,000/mL, and is considered a hematologic emergency.[1] Thrombocytopenia may be due to decreased production from bone marrow, increased peripheral destruction, abnormal sequestration and pooling.[2] Early recognition of thrombocytopenia can avoid bleeding manifestations including fatal intra cranial haemorrhage. Apart from infectious etiology, there are other causes of thrombocytopenia in patients. Hence this study attempted to find the various etiologies of thrombocytopenia in hospitalized patients with a clinicopathological correlation of their presenting features.

The main objective of this study was clinical correlation of various cases of thrombocytopenia with investigations in adults presenting to a tertiary care hospital. This study aimed to find the age and gender distribution of the cases, various etiological factors, severity of thrombocytopenia, various mode of clinical presentation and the proportion of patients presenting with bleeding manifestations. This study also attempted to discuss the mechanism of thrombocytopenia in each category and the occurrence of clinical features and complications in each category.

MATERIAL AND METHODS

This was a cross sectional study done in a tertiary care centre at Sitapur and Shahjahanpur districts of Uttar Pradesh in India for a period of 6 months from august 2018 to december2018 with approval from institutional aethical committee. Blood samples of the patients were run in the automated analyser at the clinical pathology laboratory. Patients with baseline platelet count less than 1,50,000, and confirmed with the peripheral smear were included for the study. Patients of both gender of age more than 15 years admitted in medicine department wards with a platelet count of less than 1,50,000 were included in study after informed consent by patient himself or their guardian. Patient on antiplatelet drugs and other medications causing thrombocytopenia were excluded from study.

Patients followed during their course in the hospital and after discharge. Baseline platelet counts were done on the first day. Repeat platelet counts were done until normal or near-normal values were reached. The bleeding manifestations at the first day or during course in hospital were recorded. Patients receiving platelet transfusion due to bleeding manifestations or prophylactically were recorded.

The routine blood test including complete blood counts, liver function test, renal function test, blood sugar were done. Peripheral blood smear of all cases were done for confirming platelet count and malarial cases. Bone marrow aspirates,

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serology for HIV, blood culture for tyhphoid, chest x ray ultrasound abdomen, prothrombin time and investigation for other infectious diseases in some specific cases were done. The Data was collected in the Microsoft excel and analysed.

RESULTS

Total sample size was 135 patents from July 2018 to December 2018 (Table-1). The study participants included 95(70.37%) males and 40 (29.63%) females. Most of the cases of our study belonged to the age group 25 to 45 years

Age group	Gender	
	Male	**Female**
15-25	12	6
25 – 45	46	12
45 – 65	26	18
>65	11	4
Total	95	40
Table-1: Age and Sex		

	Platelet count (in cumm)	Number of patients	Percentage
1	< 20000	28	20.74
2	20,000 – 50,000	32	23.70
3	50,000 – 1,00,000	45	33.33
4	>100000	30	22.22
	Total	135	100
Table-2: Platelet count of patients presenting with Thrombocytopenia			

No.	Diagnosis	Number of cases (Percentage)
1	Dengue	32 (23.70)
2	Malaria	20 (14.81)
3	Enteric fever	19(14.07)
4	Septicemia	17 (12.6)
5	Liver diseases	11(8.14)
6	Kidney diseases	6(4.44)
7	Immune thrombocytopenic purpura	9(6.66)
8	Leukaemias	5(3.70)
9	Pregnancy	9(6.66)
10	Others	7(5.18)
	Total	135 (100)
Table-3: Diagnosis of Patients with Thrombocytopenia		

No.	Signs and symptoms	Total cases (%)
1	Fever	76(56.3)
2	Bodyache	55(40.74)
3	Joint pain	45(33.33)
4	Bleeding manifestations	23(17.03)
5	Hepatosplenomegaly	21(15.55)
6	Jaundice	17(12.59)
7	Ascites	12(8.89)
8	Breathlessness	12 (8.89)
9	Shock	9(6.66)
10	Oliguria	6(4.44)
Table-4: Clinical Profile of Thrombocytopenia		

followed by 45-65 years age group.

The platelet count of patients presenting with thrombocytopenia were graded and were shown in Table.2. Out of 135 cases, 34% had only thrombocytopenia, 55%had bicytopenia, and 12% had pancytopenia.

The etiological diagnosis of patients with thrombocytopenia is shown in Table-3. Out of 135 patients, 32(23.70%) were diagnosed dengue. Malaria was found in 20% patients in which 54%s had Plasmodium falciparum and 36% had Plasmodium vivax and mixed infection in 10%. Platelet count less than 20000 were more common in P. falciparum infection

Other diagnosis was typhoid fever, septicaemia or disseminated intravascular coagulation disorder, liver disease, kidney disease, ITP, pregnancy and leukaemias. Bleeding secondary to thrombocytopenia was seen in dengue sepsis, leukaemia, malaria, and ITP.

The clinical profile of thrombocytopenia is shown in Table-4. The majority of cases were presented with fever (56%) followed by bodyache (40.74%), joint pain (33.33%), bleeding(17.03%) and hepatosplenomegaly (15.55%).

DISCUSSION

The most common cause of thrombocytopenia in present study was found dengue or dengue-like fever (23.7%). The cause of thrombocytopenia in dengue fever is impaired thrombopoiesis[3], platelet sequestration[4], activation of the complement system[5] and autoantibodies against blood-coagulation-related molecules and antiplatelet antibodies mediated platelet lysis.[6,7,8]

Malaria was the second common cause of thrombocytopenia (14.81%). Severe thrombocytopenia is very common in falciparum malaria. 54% had Plasmodium falciparum and 36% had Plasmodium vivax and mixed infection in 10%. Plateletet count less than 20000 were more common in P. falciparum infection The cause of thrombocytopenia in malaria is direct lysis of platelets by plasmodium[9], increased oxidative stress causing destruction[10] of the platelets. The third cause of thrombocytopenia in the study was typhoid fever. The bicytopenia and subclinical disseminated intravascular coagulation in enteric fever is due to bone marrow suppression and hemophagocytosis.[11]

Chronic liver disease was seen in 11 cases of thrombocytopena (15.2%) patients, which causes persistent thrombocytopenia and manifests as cirrhosis, fibrosis, and portal hypertension. The cause of thrombocytopenia in liver disease is portal hypertension and splenic sequestration.[12] 19 patients of thrombocytopenia were diagnosed as septicemia. The cause of low platelets is binding to the endothelium and sequestered[13,14], immunologically mediated destruction of platelets by non specific antibodies[15] and hemophagocytosis.[16,17] Thrombocytopenia in chronic kidney disease possibly because of reduced thrombopoietic activity.[18]

The 9 cases of thrombocytopenia in pregnany was seen. The Gestational thrombocytopenia during the third trimester, with postpartum resolution is the most common cause

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of thrombocytopenia in pregnancy.[19] The preeclampsia, HELLP syndrome and ITP are life threatening complications during pregnancy.[20] 9 patients were diagnosed as ITP. They had antiplatelet antibodies in plasma. Antibody of antiplatelet lgG, stick to the membrane of platelets are kept through the macrophage Fc receptors in spleen. So platelet counts decreases in circulation.[21] The other causes of thrombocytopenia were megaloblastic anemia, aplastic anemia, HIV and connective tissue disorders. The similar type off study done by Nair et al.[22] at St. Stephen's Hospital, New Delhi. A total of 109 cases (76 male and 33 female patients) were studied with the criteria of febrile thrombocytopenia. Septicemia with 29 cases was the leading cause of fever-associated thrombocytopenia followed by dengue, megaloblastic anemia, malaria, and hematological malignancy. In the current study, the leading causes were dengue followed by malaria, typhoid and septicemia because this study was from remote and rural areas of Uttar Pradesh. Bhalara et al[23] studied thrombocytopenia in 412 patients. Dengue was diagnosed in 28.6% of patients followed by malaria in 22.8%. The results were similar to our study.

CONCLUSION

The most common cause of thrombocytopenia was dengue followed by malaria and enteric fever. Not every case of thrombocytopena is dengue. One should also search for non infectious causes like liver disease, kidney disease and ITP. Early recognition of cause of thrombocytopenia can avoid bleeding manifestations. The present study was done to identify the clinical presentation and the cause of thrombocytopenia. The transfusion of platelets was not needed in all cases of thrombocytopenia. Treatment of disease may be sufficient.

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