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Original Research Article

Clinical Profile of Patients with Thrombocytopenia Attending a Tertiary Care Hospital, Gujarat.

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Abstract: Thrombocytopenia sometimes becomes a life-threatening condition requiring blood transfusion in various etiological conditions. Infection like malaria and dengue are invariably associated to thrombocytopenia with changing trends in clinical features. This was a cross sectional study conducted to find out various etiologies giving rise to thrombocytopenia and its association with bleeding condition. The study was done in 50 patients of thrombocytopenia admitted in 2 years duration and fulfilling the criteria of study. Data was collected in Microsoft excel and analyzed in Epi-info Software. Among the 50 patients 34 were males and 16 were females. 80% of the patients were the residents of urban area. The common presenting symptoms were petechia, Gum bleeding, Hematuria, Epistaxis and hematemesis. Infection was the most common cause affecting almost half of the patients. Severe thrombocytopenia was observed in 38% of patients who all developed bleeding manifestations. 12% patients had pancytopenia. Supportive treatment was given to all patients and blood and platelet transfusion were also given when needed.
Keywords: Thrombocytopenia, Clinical Profile, Dengue fever, Malaria, Bleeding Manifestations.

INTRODUCTION:

Thrombocytopenia is relative decrease of platelets in blood. Thrombocytopenia is defined as platelet count less than 1,50,000 per micro liter. A normal human platelet count ranges from 1,50,000 to 4,50,000 per micro liter of blood[1]. Thrombocytopenia results from one or more of three processes: (1) Decreased bone marrow production; (2) Sequestration, usually in an enlarged spleen; (3) Increased platelet destruction. Disorders of production may be either inherited or acquired[2]. Common causes of thrombocytopenia are infections, drugs, autoimmunity, Hypersplenism, DIC, etc. Pseudo thrombocytopenia should always be ruled out first by peripheral smear examination. Thrombocytopenia results in abnormality of platelet plug formation which leads to defects in primary homeostasis and characterized by prolonged bleeding time, and the characteristic physical examination findings are petechial, purpura and bleeding from other sites. Studies have shown significant association between malaria and thrombocytopenia; the incidence of which ranges from 40.5-85%[3]. Dengue is also associated with thrombocytopenia which may result in severe fall in platelet count and high mortality due to bleeding manifestation. Because of various complications associated with thrombocytopenia, burdens in terms of money and time increases. The mean duration of illness and that of hospital stay was 5 days and 6 days respectively in a study conducted by Aroor *et al*[4]. So, this study was undertaken to correlate clinical profile of thrombocytopenia in adult patients with special emphasis on infection associated cases, in particular dengue and malaria patients admitted in a tertiary care hospital of western India.

MATERIALS AND METHOD:

The present study was a descriptive Cross-sectional hospital based study which was carried out at the Department of medicine of a tertiary care hospital of western India. The aim of the study was to determine clinical profile of patient having thrombocytopenia attending the hospital. This study was carried out by collecting the data over the period of 2 years from 2009 to 2011 with the objective of determining association between severity of thrombocytopenia and bleeding manifestations in various condition. Special emphasis was given to look into the changing pattern of infection like P.Vivax Malaria and Dengue fever with regards to thrombocytopenia and to study any associated

qualitative defect of Platelet function. This study consisted of 50 cases of thrombocytopenia admitted in the hospital during the study period. Patients were selectedon the basis of platelet count on admission and on inclusion criteria of having thrombocytopenia less than 1,50,000 per micro liter in patients more than 12 years of age. Pediatric population (age ≤ 12 years) was excluded from the study. Patients having thrombocytopenia were included irrespective of their symptoms. Data was collected using a pretested semi structured instrument after taking written informed consent. Data was collected in study Performa which was entered into Microsoft excel and analyzed using Epi-info Software.

Detailed clinical history including symptoms (various bleeding manifestations like Epistaxis, Gum bleeding, Hematemesis, Melena, Bleeding PR, Menorrhagia, Hematuria) and signs (petechia, purpura, Intra cerebral hemorrhage etc.) was taken. General examination (physical parameters, anemia, cyanosis, clubbing, edema feet, neck veins etc.) and examination for Splenomegaly and hepatomegaly were done. General investigations (e.g.CBC, RBS, RFT, LFT, urine R/M, HIV, HbsAg, ECG, Chest X-ray), BT, CT, peripheral smear and serial platelet counts were done in all patients. Special investigations like bone marrow examination was done when needed.

All patients were treated with supportive treatment including platelet and blood transfusion and according to their specific etiology.

RESULTS:

The present study included 50 Patients out which 34(68%) were males and 16(32%) were females. The majority of the patients 15(30%) were in the age group of 21-30, next common age group was 13-20 years which had 12(24%) patients. Out of this 50 Patients 10(20%) were diagnosed to have Immune Thrombocytopenic Purpura (ITP). Out of these 10 Patients 6(60%) were female which is contrast to total male female ratio. Half of the patients of ITP were in the age group 31-40 years. None of the patient had age more than 40 years. Most of the Patients were residents of Urban Area. About occupation 23(46%) patients were laborers and 5(10%) were Farmers. There were also 12(24%) House-wife.**(Table 1)**

In the study, patients presented with various bleeding manifestations. Out of 50 patients of Thrombocytopenia, 30(60%) had bleeding manifestations among which petechia/purpura was the most common manifestation seen in 17(34%) patients. Gum bleeding was the second leading symptom seen in 10(20%) patients which was followed by Hematuria, Epistaxis and Hematemesis. Patient were having more than one bleeding manifestations so overlapping was seen.**(Table 2)**

One of the objectives was to determine various conditions giving rise to thrombocytopenia and their relation to bleeding. In the present study, among 50 cases of Thrombocytopenia 23(46%) cases were due to infection out of which almost half (47.8%) cases presented with bleeding. Among infections 15 had Malaria and 8 had Dengue fever. 10(20%) cases were due to ITP among which 90% developed bleeding manifestations. Other causes of thrombocytopenia included Splenomegaly, Vitamin B-12 deficiency, DIC etc. Single case of AML and Snake bite each was also noted. All the cases of DIC, Aplastic anemia and AML had bleeding manifestations. **(Table 3)**

Table 1: Demographic profile of Patients with Thrombocytopenia. (N=50)

Variables	**No. (%)**	**Patients with ITP (N=10), N0. (%)**	**Variables**	**No. (%)**
Gender			**Residence**	
No. of Males	34(68)	4(40)	Urban	40(80)
No. of Females	16(32)	6(60)	Rural	10(20)
Age group (in years)			**Occupation**	
13-20	12(24)	3(30)	Laborer	23(46)
21-30	15(30)	2(20)	House-wife	12(24)
31-40	10(20)	5(50)	Student	10(20)
41-50	07(14)	-	Farmer	5(10)
51-60	02(4)	-		
61-70	01(2)	-		
More than 70	03(6)	-		

Table 2: Clinical Presentation of Patients with Thromboctopenia.(N=50)

Symptoms	Patients having Thromboctopenia No.(%)
Petechia / Purpura	17(34)
Gum bleeding	10(20)
Hematuria	7(14)
Epistaxis	6(12)
Hematemesis	6(12)
Menorrhagia	3(6)
Bleeding from iv catheter site	3(6)
Melena	2(4)
Bleeding PR	2(4)
Intra cerebral hemorrhage	2(4)

Table 3: Etiology of Thrombocytopenia and its correlation with Bleeding. (N=50)

Etiology	Cases of Thrombocytopenia No.(%)	Bleeding Present No.(%)
Infections	23(46)	11(47.8)
P.Vivax Malaria	9(18)	4(44.4)
P.Falciparum Malaria	6(12)	2(33.3)
Dengue Fever	8(16)	5(62.5)
ITP	10(20)	9(90)
Splenomegaly/ Hypersplenism	5(10)	2(40)
Vitamin B 12 deficiency	3(6)	1(33.3)
DIC	3(6)	3(100)
Drug induced thrombocytopenia	2(4)	1(50)
Aplastic anemia	2(4)	2(100)
AML	1(2)	1(100)
Snake Bite	1(2)	0
Total	**50(100)**	**30(60)**

In the study, we correlated severity of thrombocytopenia with infection like Malaria and Dengue. Out of 50 cases, over all 11(22%) had mid thrombocytopenia, 20(40%) had moderate Thrombocytopenia and 19(38%) had severe thrombocytopenia. All the cases having severe thrombocytopenia developed bleeding while 27% cases of mild thrombocytopenia developed bleeding. Among the 9 cases of P.Vivax Malaria 4(44.4%) had severe thrombocytopenia who all had bleeding. Among P.Falciparum cases one each of moderate and severe thrombocytopenia developed bleeding. Out of 8 Dengue cases 5(62.5%) developed bleeding among which majority 3(60%) of patients had mild thrombocytopenia.**(Table 4)**

Table 4: Correlation of Malaria and Dengue with Severity of Thrombocytopenia and Bleeding Manifestation.

		Severity of Thrombocytopenia (Platelet/ul)			Total
		Mild (50,000 to 1,50,000)	**Moderate (20,000 to 50,000)**	**Severe (< 20,000)**	**No. (%)**
Total Patients (N=50)	Thrombocytopenia	11(22)	20(40)	19(38)	50(100)
	Bleeding present	3(27.2)	8(40)	19(100)	30(60)
P.Vivax (N=9)	Thrombocytopenia	4(44.4)	1(11.1)	4(44.4)	9(100)
	Bleeding present	0(0)	0(0)	4(100)	4(44.4)
P.Falciparum (N=6)	Thrombocytopenia	1(16.6)	4(66.6)	1(16.6)	6(100)
	Bleeding present	0(0)	1(25)	1(100)	2(33.3)
Dengue (N=8)	Thrombocytopenia	4(50)	4(50)	0(0)	8(100)
	Bleeding present	3(75)	2(50)	0(0)	5(62.5)

In the peripheral smear, out of 50 cases 26(52%) had only thrombocytopenia, 12(24%) had anemia along with thrombocytopenia, 6(12%) had leucopenia along with thrombocytopenia while Pancytopenia was seen only in 6(12%) cases.**(Table 5)**

Table 5: Peripheral Smear of Patients. (N=50)

Peripheral Smear	Patients No.(%)
Isolated Thrombocytopenia	26(52)
Thrombocytopenia with Anemia	12(24)
Thrombocytopenia with Leucopenia	6(12)
Pancytopenia	6(12)
Total	**50(100)**

In the study, Hepatomegaly was seen in 4(8%) cases while Splenomegaly was seen in 10(20%) cases. 11(22%) cases had normal bleeding time of less than 8 minutes and none had bleeding manifestation while 19(38%) had bleeding time more than 10 minutes and all had bleeding manifestations. 20(40%) had bleeding time between 8-10 minutes out of those 11(55%) developed bleeding manifestations.

DISCUSSION:

In the present study Cumulatively Maximum incidence (74%) for age was seen in the age group 13-40 years. Thus elderly population was less commonly involved. This finding is similar as noted by Shah HR[5] in his study. In present study, M: F ratio of 2.1:1 was observed. So male preponderance as compared to female was noted in the study. In a study done by Shah HR[5] there were 54% male and 46% female which is similar to our findings. Out of total 10 patients with ITP in study all were in the age group of 13-40 years and 50% were in the group of 31-40 years. Thus ITP is a disorder of Young. Findings of our study are comparable to ITP study done by Wong GC[6] which showed common age group for ITP was 13-40 years of age while Male to female ratio shown by him was 1:3.6 for patients having ITP. Urban rural differences prominent in the study may not be significant as majority of patients in the study were from urban area.

About the Bleeding manifestations, 20(40%) had no bleeding, 22(44%) had systemic bleeding (Hemoptysis, Hemetemesis, Hematuria, ICH, etc.), 19(38%) had mucosal bleeding (Gum bleeding, Epistaxis, bleeding from IV site) and 17(34%) patients had petechia/purpura. While in the study conducted by Jameel T[7] systemic bleeding was seen only in 10% cases while majority (57%) cases had petechial/purpura.

Infection was the leading cause for developing thrombocytopenia in present study which was also noted by other studies[5,8]. Among the infection P.Vivax was the leading cause in the study while it was P. Falciparum(24%) and Dengue(28%) in the studies done by Shah HR[5] and Bhalar SK[8] respectively. In our study ITP was responsible for causing thrombocytopenia in 20% cases while it caused thrombocytopenia in only 3% and 6% cases in the study of Bhalar SK[8] and Shah HR[5] respectively. Out of 50 patients 5(10%) cases had dengue along with bleeding manifestations while in Bhalar SK[8] study dengue was the cause for bleeding in 26% of cases.

In a study conducted by Patel U[9] all the 40 malaria patients were associated with Thrombocytopenia. In our study malaria was responsible for 30% of thrombocytopenia patient and out of those 6(40%) had bleeding manifestations. So, Thrombocytopenia can be used as predictor of malaria in febrile patients, particularly in endemic areas. Thrombocytopenia frequently complicates malaria and usually associated with P.Falciparum malaria. Generally Falciparum malaria is associated with moderate to severe Thrombocytopenia while P.Vivax malaria is associated with mild thrombocytopenia.This trend has been shown in study done by Patel U[9] while in our study surprisingly P.Vivax is associated with severe Thrombocytopenia which signifies that vivax malaria can also complicate the course of Thrombocytopenia. Chairulfatah A[10][0] demonstrated in his study that Severe thrombocytopenia in dengue patients is associated with bleeding manifestations but in our study patients of dengue having mid and moderate thrombocytopenia were associated with bleeding. This signifies that platelet count alone is a poor predictor of bleeding in dengue patients. Dengue patients might have an associated functional defect in platelets as suggested by prolonged bleeding time in mild and moderate thrombocytopenia.

Almost half (52%) of the patients had Isolated Thrombocytopenia while only 25% patients had selective Thrombocytopenia in study done by Shah HR[5]. He cited Thrombocytopenia with anemia in 43% cases, thrombocytopenia with leucopenia in 4% cases and pancytopenia in 28% cases.

CONCLUSION:

Infections, ITP, Hypersplenism, DIC and Drugs were common causes of thrombocytopenia. Overall infections accounted for the majority of cases

following which ITP was the second most common cause. Among infections malaria and Dengue fever were common. Over all petechiae/purpura and Gum bleeding were common bleeding manifestations. Bleeding symptoms were usually associated with severe Thrombocytopenia (Platelet count < 20,000/ul). So, platelet count is a good predictor of bleeding. Our study showed that Vivax malaria can also be associated with severe thrombocytopenia and bleeding manifestations. Vivax malaria was considered a benign infection but in this study changing pattern of the vivax malaria was seen. Many patients of dengue fever with mild to moderate thrombocytopenia were also associated with bleeding symptoms.

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