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CLINICAL PROFILE REVIEW OF PATIENTS WITH THROMBOCYTOPENIA: A STUDY OF 100 CASES AT A TERTIARY CARE CENTRE

Shah H. R.[1], Vaghani B. D.[2], Gohel P.[2], Virani B. K.[3]

[1]Department of Medicine, GMERSMC, Ahmedabad, India, [2]Department of Pathology, B J Medical College, Ahmedabad, India, [3]Department of Medicine, B J Medical College, Ahmedabad, India.

ABSTRACT

Introduction: With the widespread use of automated cell counters, clinicians in any field of medicine may encounter thrombocytopenia. The symptomatology of thrombocytopenia varies greatly and the underlying cause may be either inconsequential (pseudo-thrombocytopenia) or life threatening.

Aims & Objectives: To evaluate different causes of thrombocytopenia along with study of clinical profile and laboratory parameters in patients with thrombocytopenia. Materials and Method: A total of 100 patients with thrombocytopenia admitted to Civil Hospital, Ahmedabad and were evaluated. Patients with platelet count <1 lack/mm3 were included in study whereas patients with malignancy and chemotherapy induced thrombocytopenia were excluded.

Results: The present study includes age group 13-70 years. The highest incidence of thrombocytopenia belonged to the age group 21-30 years (30%) followed by 13-20 years (24%) and 31-40 years (22%).The diseases that causes thrombocytopenia commonly like Megaloblastic anemia and infections (malaria, dengue, enteric fever, and septicemia) are common in younger population. Our study shows almost ¾ of total patients were below age of 40 years.

Conclusion: Bleeding manifestations were present in 1/3rd of patients and the common site is skin and mucous membrane in 1/3rd patients the main cause of which was ITP and majority patients had platelet count <20,000/µl.

Key Words: Platelet count, Bleeding manifestation, Spleenomegaly

INTRODUCTION

Thrombocytopenia is defined as a subnormal number of platelets in circulatory blood. With the widespread use of automated cell counters, clinicians in any field of medicine may encounter thrombocytopenia. The symptomatology of thrombocytopenia varies greatly and the underlying cause may be inconsequential (pseudo-thrombocytopenia) or life threatening. Thrombocytopenia is caused by one of any three mechanisms:

1) Decreased bone marrow production,

2) Increased splenic sequestration or,

3) Accelerated platelet destruction

In our geographical distribution the infections (e.g. malaria, dengue, enteric fever) and Megaloblastic anemia are commonly associated with thrombocytopenia, which is mild to moderate degree.

MATERIALS AND METHOD

A total of 100 patients with thrombocytopenia admitted to Civil Hospital, Ahmedabad and were evaluated.

Criteria for Patient Selection:

1. Inclusion Criteria: Patient with platelet count<1 lack/mm^3 (with or without clinical bleeding).
2. Exclusion Criteria: Patient having malignancy with thrombocytopenia or due to treatment with cancer chemotherapy is excluded.

Detailed clinical history was noted in each patient including site of bleeding, past history of drug and TB. Detailed physical examination was carried out in all patients. Routine Investigation in form of CBC, chest x-ray, RFT, LFT, Coagulation Profile etc. were carried out in all patients. The special investigations like Bone Marrow Examination, Serum Widal, Dengue Serology, Coomb's test,

Corresponding Author:
Dr. Binal D. Vaghani, 11-Apoorva Bunglows, B/h: Swaminarayan Baug, Nr: Saheli Party plot, Memnagar, Ahmedabad-380052.
E-mail: binal9913397576@gmail.com

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G6PD Test, LE Cells, Sucrose Lysis Test, RA Factor, ANA/ Anti-Ds DNA, NCCT brain etc. were done as and when required. All the patients were treated with disease specific treatment and platelet transfusion was given as per indication. All the data of each patient were recorded in separate proforma.

RESULTS

The present study includes age group 13-70 years. The highest incidence of thrombocytopenia belonged to the age group 21-30 years (30%) followed by 13-20 years (24%) and 31-40 years (22%) (Table.1). Incidence of thrombocytopenia was more in men (54%) as compared to women (46%) (Fig.1).

In present study, the most common cause of thrombocytopenia was malaria (31%) followed by Megaloblastic anemia (26%) and dengue fever (18%) (Table.2).We had reported 7% patients with P.Vivax malaria as an uncommon presentation with thrombocytopenia. We had not observed any patient with pseudo-thrombocytopenia. In this study, 32(32%) patients out of total 100 patients had bleeding manifestations. 7(19%) of the 32 patients, presented with bleeding manifestations from more than one site. Rest of the patients did not have any hemorrhagic manifestations although they fulfilled the inclusion criteria. Most common bleeding manifestation was in skin and mucous membrane (33%) followed by gum bleeding (25%) and bleeding per vagina (19%) (Table.3). The major clinical bleeding in the form of intracranial hemorrhage was detected in only one patient (3%).ITP (42%) and dengue fever (33%) were common etiologies associated with skin and mucous membrane bleeding (table.4). In patients with gum bleeding, dengue fever (33%) and Megaloblastic anemia (33%) were common causes, while in patients with per vaginal bleeding ITP (58%) was the common etiology.

Spleenomegaly was found in 1/4th of patients with thrombocytopenia. While spleenomegaly as a part of Hypersplenism itself causes thrombocytopenia, many diseases like malaria, enteric fever etc. are associated with Spleenomegaly (Table 5 & 6). Most common cause of spleenomegaly was malaria (56%) followed by cirrhosis of liver (24%). Common etiologies in 20 patients with platelet count <20,000/μl were ITP (25%), malaria (20%), Megaloblastic anemia (20%) and dengue (20%) and in 10% patients with platelet count <10,000/μl were ITP (30%) and Megaloblastic anemia (20%) (Table.7).In patients presented with platelet count >50,000/μl, the commonest etiology were malaria, Megaloblastic anemia and dengue fever. Total 5 out of 6 patients with ITP presented with platelet count <20,000/μl.

Majority of patients with bleeding manifestations (75%) were having platelet count <20,000/ μl while only five patients (14%) were having >50,000/ μl platelets (Table 8). Out of these 5 patients, 3 patients were having hematemesis due to esophageal Varices and 2 patients were of dengue fever. Two patients presented with platelet count <10,000/ μl had no hemorrhagic manifestations.

28% of patients had pancytopenia, 4% patients had leucopenia with thrombocytopenia, 43% patients had anemia with thrombocytopenia and 25% patients had selective thrombocytopenia (Table 9).Out of 28 patients of pancytopenia, 15(54%) had Megaloblastic anemia. 4 patients were presented with bicytopenia. All patients with ITP had bleeding time within normal limits despite of mean platelet count was 12,000/ μl. Two patients in our study with platelet count <10,000/ μl were asymptomatic and 32 patients having bleeding manifestations required platelet transfusion irrespective of their platelet count. Remaining patients were given disease specific treatment (Table.10).

DISCUSSION

The diseases that cause thrombocytopenia commonly like Megaloblastic anemia and infections (malaria, dengue, enteric fever, and septicemia) are common in younger population. Our study shows almost ¾ of total patients were below age of 40 years. As thrombocytopenia is a laboratory abnormality and diseases that commonly cause thrombocytopenia have no sex predilection, but our observation corresponds to our admission rate for female and male patients in our institute. As India is endemic for malaria and liver Cirrhosis is also common, majority of patients with these diseases showed spleenomegaly associated with thrombocytopenia. This observation shows that common etiologies of thrombocytopenia in the present study were less severe as compared to uncommon etiologies. In our study we found that Megaloblastic anemia is major cause for pancytopenia which is best correlated with literature[9]. The possible explanation for associated bicytopenia could be an immune mediated reaction. Bleeding time was normal also in patients with mean platelet count <12,000/μl, suggest that only low platelet count is not responsible but function of platelets is also responsible for raised bleeding time[12].

CONCLUSION

Thrombocytopenia is more common in age group below 40 years of age where men are more affected than women. Bleeding manifestations were present in 1/3rd of patients and the common site is skin and mucous membrane in 1/3rd patients the main cause of which was ITP and majority patients had platelet count <20,000/μl. The commonest etiology was malaria in 1/3rd patients followed by Megaloblastic anemia in 1/5th and dengue

fever in 1/6th patients.1/4th cases of malaria were associated with spleenomegaly.

Table 1: Age incidence in patients with Thrombocytopenia

Age Group (in Yrs.)	% of Patients (n=100)
13-20	24
21-30	30
31-40	22
41-50	14
51-60	9
61-70	1
TOTAL	100

Table 2: Etiology of Thrombocytopenia

Causes	Total Patients (n=100)	NADIR ALI et al.2004[8]
Megaloblastic anemia*	26	18.2
P.Falciparum Malaria**	24	17
Dengue	18	27
Cirrhosis of Liver	9	4
P.Vivax Malaria	7	0
ITP	6	2.9
Enteric Fever	5	0
HIV	5	4
DIC	2	2.9
HELLP Syndrome	2	2
Thalassemia	1	0
SLE	1	0
Hypersplenism	1	2.9

*2 Patients with enteric fever and 1 patient with P.Vivax malaria also had Megaloblastic anemia.
**2 patients with dengue fever and 2 patients with P.Vivax malaria also had P. Falciparum malaria.

Table 3: Hemorrhagic Manifestations Associated with Thrombocytopenia

Site of Bleeding	Total no (%) of Patients (n=32)
Skin and Mucous Membrane (Petechiae, ecchymosis, Purpura)	12(33%)
Gum Bleeding	9(25%)
Bleeding per vagina	7(19%)
Hematemesis	5(14%)
Hematuria	4(11%)
Malena	3(8%)
Bleeding per Rectum	2(5%)
Epistaxis	2(5%)
Subconjuctival Hemorrhage	1(3%)
Intracranial hemorrhage	1(3%)

Table 4: Correlation of Bleeding Manifestations with Etiology

Hemorrhagic Manifestations	Etiology	No. of Patients (%)
Skin and Mucous membrane (n=12)	ITP	5(42%)
	Dengue fever	4(33%)
	Enteric fever	2(17%)
	Megaloblastic anemia	1(9%)
	P.Vivax Malaria	1(9%)
Gum bleeding (n=9)	Megaloblastic anemia	3(33%)
	Dengue	3(33%)
	P.Falciparum malaria	2(22%)
	ITP	1(11%)
Per vaginal bleeding (n=7)	ITP	4(58%)
	Dengue	1(14%)
	Enteric fever	1(14%)
	Megaloblastic anemia	1(14%)
	DIC	1(14%)

Table 5: Spleenomegaly and Hepatomegaly in Thrombocytopenia

Site of Bleeding	% of Patients
Spleenomegaly	25%
Hepatomegaly	7%
Hepatospleenomegaly	6%

Table 6: Etiological Distribution in Patients with Spleenomegaly

Etiology	No. of Patients (n=25)
P. Falciparum malaria	10
Cirrhosis of liver	6
P. Vivax malaria*	4
Megaloblastic anemia	3
Enteric fever	2
Thalassemia	1
Hypersplenism	1
HIV	1
Total	25

*2 patients with P.Falciparum malaria and 1 patient with Megaloblastic anemia also had P.Vivax malaria.

Table 7: Correlation of etiology with platelet count

Etiology (n=100)	Platelet count <10,000/µl	Platelet count 10,000-20,000/µl	Platelet count 20,000-50,000/µl	Platelet count >50,000/µl
Megaloblastic anemia (26)	2	2	9	13
P.Falciparum Malaria (24)	1	2	4	17
Dengue (18)	2	2	2	12
Cirrhosis of Liver (9)	0	0	3	6
P.Vivax Malaria (7)	0	1	3	3
ITP (6)	3	2	1	0
Enteric Fever (5)	1	1	1	2
HIV (5)	1	0	3	1
DIC (2)	0	0	2	0
HELLP Syndrome (2)	0	0	2	0
Thalassemia (1)	0	0	0	1
SLE (1)	0	0	0	1
Hypersplenism (1)	0	0	0	1
Total	10	10	30	57

Table 8: Correlation of bleeding site with platelet count

Etiology (n=100)	Platelet count <10,000/µl	Platelet count 10,000-20,000/µl	Platelet count 20,000-50,000/µl	Platelet count >50,000/µl
Skin and Mucous Membrane (Patechiae, ecchymosis, Purpura)(12)	5	2	4	1
Gum Bleeding (9)	2	2	5	0
Bleeding per vagina (7)	3	1	2	1
Hematemesis (5)	0	1	1	3
Hematuria (4)	2	2	0	0
Malena (3)	2	1	0	0
Bleeding per Rectum (2)	1	0	1	0
Epistaxis (2)	0	1	1	0
Subconjuctival Hemorrhage (1)	1	0	0	0
Intracranial hemorrhage(1)	1	0	0	0

Table 9: Blood count suppression in peripheral smear

Peripheral Smear	% of Patients (n=100)
With pancytopenia	28%
With leucopenia	4%
With anemia	43%
Selective thrombocytopenia	25%
Total	100

Table 10: Treatment of patients with Thrombocytopenia

Platelet count			
<10,000/µl		>10,000/µl	
Required transfusion	Disease specific treatment	Required transfusion	Disease specific treatment
11	0	23	76

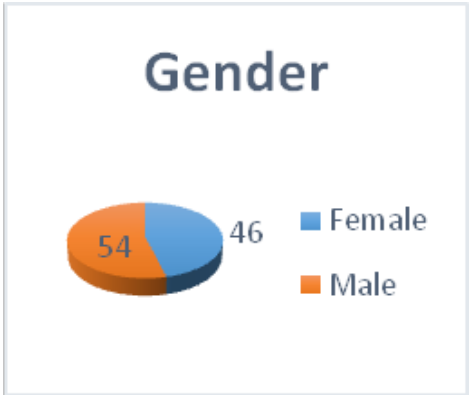

Figure 1: Sex Incidence in patients with thrombocytopenia

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Abbreviations:

CBC	Complete Blood Count
G6PD	Glucose-6-Phosphatase Dehydrogenase
LE	Lupus Erythematous
RA	Rheumatoid Arthritis
ANA	Anti-Nuclear Antibody
Ds DNA	double stranded DNA
NCCT	Non-Contrast computerized Tomography
ITP	Immune thrombocytopenic Purpura
HIV	Human Immunodeficiency Virus
DIC	Disseminated intravascular Coagulopathy
SLE	Systemic Lupus Erythematous
TB	Tuberculosis
RFT	Renal Function Tests
LFT	Liver Function Tests

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