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Original Research Paper

Medicine

STUDY OF CLINICAL PROFILE OF THROMBOCYTOPENIA

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ABSTRACT

Objective: Thrombocytopenia is often the most commonly encountered clinical condition in our routine practice. Etiological causes being numerous , often pose a challenge in evaluating and treating the patients . The objective of this study was to find out the epidemiology, etiology and complications in the patients admitted in General Medicine department in G. G. G. Hospital, JAMNAGAR, GUJARAT.**Materials And Methods:**This was a prospective study done on 135 patients with thrombocytopenia admitted to G G G HOSPITAL JAMNAGAR with various complaints, during the period of DEC 2021 TO JUNE 2022.**Results:**This study includes age group 18-80 years. The highest incidence of thrombocytopenia belonged to the age group 21-30 years (26.6%) Incidence of thrombocytopenia was more in men (68%) compared to women (32%). The most common cause of thrombocytopenia was dengue fever (43.7%) followed by liver disease(20.7%).**Conclusion:**Infections like malaria, dengue, septicemia were the common causes of thrombocytopenia along with megaloblastic anemia and liver disease. Whenever thrombocytopenia is detected further investigations can help us in reaching a correct diagnosis in the majority of cases so that appropriate treatment can be given.

KEYWORDS : Thrombocytopenia, Clinical profile, Septicemia, Dengue fever, Malaria, Bleeding menifestations.

INTRODUCTION

Normal blood platelet count is 150,000-450,000/μL. Thrombocytopenia is defined as subnormal number of platelets in the circulating blood.

Platelets play major role in primary hemostasis. When endothelial continuity is disrupted and the underlying matrix is exposed, platelets interact with subendothelium-bound von Willebrand factor (vWf) via the membrane glycoprotein (GP) Ib complex. This initial interaction (platelet adhesion) sets the stage for other adhesive reactions that allow the platelets to interact with each other to form an aggregate.The platelet GP IIb/IIIa complex mediates platelet aggregation. On resting platelets, GP IIb/IIIa is unable to bind fibrinogen or vWf.

Thrombocytopenia results from one or more of three processes:

1) decreased bone marrow production; 2)sequestration usually in enlarged spleen; 3)increased platelet destruction. Disorder of production may be acquired or inherited.

The history and physical examination, results of the CBC, and review of the peripheral blood smear are all critical components in the initial evaluation of thrombocytopenic patients. Except in unusual inherited disorders, decreased platelet production usually results from bone marrow disorders that also affect red blood cell (RBC) and/or white blood cell (WBC) production. Because myelodysplasia can present with isolated thrombocytopenia, the bone marrow should be examined in patients presenting with isolated thrombocytopenia who are older than 60 years of age. While inherited thrombocytopenia is rare.A careful history of drug ingestion should be obtained, including non-prescription and herbal remedies, because drugs are the major cause of thrombocytopenia. The physical examination can document an enlarged spleen, evidence of chronic liver disease, and other underlying disorders. A platelet count of approximately 5000– 10,000 is required to maintain vascular integrity in the microcirculation. When the count is markedly decreased, petechiae first appear in areas of increased venous pressure, the ankles and feet in an ambulatory patient. Petechiae are pinpoint, nonblanching hemorrhages and are usually a sign of a decreased platelet number and not platelet dysfunctionIn our geographical distribution, the infectious causes like dengue malaria enteric fever, hepatitis and megaloblastic anemia are commonly associated with thrombocytopenia.

So it is necessary to determine etiology and also clinical and laboratory evaluation of patients with thrombocytopenia to provide preventive, promotive and comprehensive care to these patients.

Aims and objectives aim:

To study clinical profile of patients with Thrombocytopenia admitted at Tertiary care hospital.

Objectives:

To evaluate different causes of thrombocytopenia. To study the clinical profile of thrombocytopenia.

To study laboratory abnormalities in patients with thrombocytopenia. To correlate clinical findings with laboratory abnormalities.

MATERIALS AND METHODS

Criteria For Selection Inclusion Criteria

All diagnosed cases of thrombocytopenia having platelet count < 100000μL . Both male and female cases are included. Age > 13 years.

Exclusion Criteria

Patient having age < 13 years. Pseudothrombocytopenia.

Patient having malignancy with thrombocytopenia or due to

treatment with cancer chemotherapy are excluded from this study.

4Type Of Study: A Prospective Study
Study Population: Patients of thrombocytopenia hospitalised in Tertiary Care Center.
Study Design: Hospital based
Study Area: Tertiary Hospital, attached to medical college, Tertiary Care Center, Medicine department ward 1-7.
Study Duration: 1 year
Sample Size: 135 cases of thrombocytopenia Sample size was calculated with the following formula:
n = ZPQ/L
n = sample size
Z = 1.96 for 95% confidence level
P = prevalence of the condition = 14.9%Q = (100-P) = 85.1% L = precision of the estimate, by allowing 10% error value is 6 n = $(1.96)^2$*14.9 *85.1/$(6)^2$ = 135.3

Statistical Analysis
All the data were analysed with SPSS softwear (version 13.0). categorical variables were compared by chi square test or fischer exact test and continuous variables were presented as mean +/-SD and were compared to the student "T"test. A probability value of <0.05 was considered statistically significant.

Sampling Procedure: Simple Random Sampling

METHOD:
The study was done at our tertiary care center in the department of general medicine on all patients admitted to tertiary center with thrombocytopenia

RESULTS AND ANALYSIS

Table : 1 Age Incidence In Patients With Thrombocytopenia

AGE GROUP(IN YEARS)	PERCENTAGE OF PATIENTS(n=135)
13-20	16
21-30	36
31-40	28
41-50	23
51-60	16
61-70	11
71-80	5
TOTAL	135

The present study includes age group from 13-80 years. The highest incidence of thrombocytopenia belonged to the age group 21-30 years (26.6%) .

Table 2 : Sex Wise Distribution In Patients With Thrombocytopenia

AGE GROUP(IN YEARS)	Male	Female
13-20	10	6
21-30	29	8
31-40	23	5
41-50	16	7
51-60	15	3
61-70	7	3
71-80	3	0
TOTAL	103	32

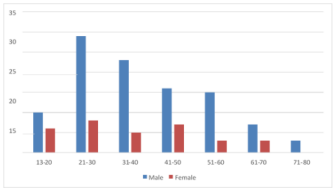

Figure 1: Age and Sex wise distribution In patients with thrombocytopenia

Above figure shows that incidence of thrombocytopenia was more common in men (76%) as compared to women (23.7%). This is because work culture in our country exposes males more to outdoor mosquitoes and Besides that males are more likely to visit health facility for any medical ailment.

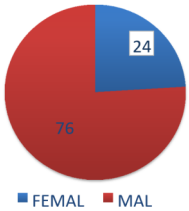

Figure 2 : Sex Incidence in Patients with Thrombocytopenia

As thrombocytopenia is a laboratory abnormality and diseases that commonly cause thrombocytopenia have usually no sex predilection, above data almost corresponds to our admission rate for female and male patients in our institute.

Table 3 : Etiology of Thrombocytopenia

Causes of Thrombocytopenia	Total patients (n=135)
Dengue fever	59
Liver cirrhosis	28
Megaloblastic anemia	12
Clinical Viral Fever	9
Septicemia	7
Hepatitis B fever	5
Malaria	4
Enteric fever	3
SLE	2
ITP	2
HIV	2
Hypersplenism	2
Total	135

In the present study the most common cause of throm bocytopenia is dengue fever (43.7%) followed by Liver cirrhosis (20.7%) and Megaloblastic anaemia (12%). We have not observed any case of pseudo thrombocytopenia. SLE, Malaria, ITP, viral hepatitis, HIV, Hypersplenism are other causes. Megaloblastic anemia is 3rd most common cause of thrombocytopenia in our study.

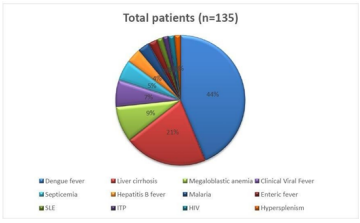

Figure 3: Etiological distribution of patients with throm bocytopenia in present study..

Table 6 : Correlation of Hemorrhagic Manifestations with Etiologies

Hemorrhagic manifestation (n=15)	Etiology	No of patients
Skin and mucousmembrane (n=14)	Dengue fever ITP Enteric fever	10 3 1
Gum bleeding (n=1)	Dengue fever	1
Menorrhagia (n=1)	Dengue fever	1
Subconjunctival haemorrhage (n=2)	Dengue fever	2
Hematuria (n=1)	Dengue fever	1
Melena (n=1)	Lever Cirrhosis	1

Above table shows that in patients with skin and mucous membrane bleeding, Dengue fever and ITP were common etiologies. Dengue fever is the mostcommon etiology of gum bleeding, menorrhagia, subconjuncival hemorrhage, hematuria in present study. Melena was seen in one patient of Lever Cirrhosis.

Table 7 : Correlation Of Common Bleeding Manifestations With Platelet Count

Hemorrhagic manifestation (n=15)	Correlationwith platelet count	No of patients(%)
Skin and mucous membrane (n=14)	<10000/ Ul <10000-20000/ Ul <20000-50000/ Ul >50000/ Ul	1 4 7 2
Gum bleeding (n=1)	<10000/ Ul <10000-20000/ Ul	1 0
Menorrhagia (n=1)	<10000/ Ul <10000-20000/ Ul	0 1
Subconjunctival haemorrhage (n=2	<10000/ Ul <10000-20000/ Ul	1 1
Hematuria (n=1)	<10000/ Ul <10000-20000/ Ul	1 0
Melena (n=1)	<10000/ Ul <10000-20000/ Ul	0 1

In present study, most of the bleeding manifestation occur at platelet count<20000 /u L. Since platelets are required for both primary and secondary hemostasis, severely reduced platelet counts are associated with higher incidence of bleeding manifestations.

Table 8 :Correlation of Etiology of Thrombocytopenia with Platelet count

Causes of Thrombocytopenia	Total patients (n=135)	Platelet count <10000/uL (very severe)	Platelet count <10000 - 20000/ Ul (severe)	Platelet count <20000-50000/ Ul (Moderate)	Platelet count >50000/ uL (Mild)
Dengue fever	59	1	4	13	41
Malaria	4	0	0	0	3
Megaloblastic anemia	12	0	1	4	7
SLE	2	0	0	1	1
ITP	2	1	0	0	1
Liver cirrhosis	28	0	3	5	20
Viral fever	9	0	1	0	8
Enteric fever	3	0	0	1	2
Septicemia	7	0	0	1	6
HIV	2	0	0	0	2
Hypersplenism	2	0	0	1	1
Hepatitis B	5	0	0	0	5
Total	135	2	9	27	97

In our study, The above comparison of platelet counts in patients of thrombocytopenia shows that most of the patients (71.8%) have platelet counts above 50000 / uL , common etiology mainly being dengue, malaria, megaloblastic anemia. 20% patients have platelet count between 20000-50000/u L. Only 8.1% patients had platelet count below 20000/u L.

Comparison of present study with various studies for etiology of thrombocytopenia.

Cuases Of Thrombocytopenia	Patients in present study (n=135)	Bhalara et al(%)	Paramjit et al(%)
Dengue fever	43.7	28.6	27.7
Liver Cirrhosis	20.7	15.2	7.7
Megaloblastic Anemia	8.9	3.9	0
Clinical Viral Fever	6.7	1.6	0
Septicemia	5.2	6.3	4.7
Hepatitis B fever	3.7	1	0
Malaria	2.9	22.8	57.7
Enteric Fever	2.2	0	0
SLE	1.5	0	0
ITP	1.5	1.3	0
HIV	1.5	1.4	0
Hypersplenism	1.5	12.3	0

DISCUSSION

The most common age group in patients with thrombocytopenia was 21-30 years (26.6%). 42.6% of total patients were below the age of 30 years. Since working age group of 21-30 years is more exposed to mosquitoes at work place and field and vector borne diseases like dengue and malaria are more common etiologies, hence this is the most common age group.

The incidence of thrombocytopenia was more common in men (68%) as compared to women (32%). This is because work culture in our country exposes males more to outdoor mosquitoes and vector borne diseases are more common in tropical countries like India.

The most common cause of thrombocytopenia is dengue fever (43.7%) followed by liver disease (20.7%) and Megaloblastic anemia (12%)

Comparison of present study with various studies for etiology of thrombocytopenia.

Cuases Of Thrombocytopenia	Patients in present study (n=135)	Bhalara et al(%)	Paramjit et al(%)
Dengue fever	43.7	28.6	27.7
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Megaloblastic Anemia	8.9	3.9	0
Clinical Viral Fever	6.7	1.6	0
Septicemia	5.2	6.3	4.7
Hepatitis B fever	3.7	1	0
Malaria	2.9	22.8	57.7
Enteric Fever	2.2	0	0
SLE	1.5	0	0
ITP	1.5	1.3	0
HIV	1.5	1.4	0
Hypersplenism	1.5	12.3	0

The Most common presenting symptom in patients of thrombocytopenia was fever (59%) followed by generalised bodyache (31%) and joint pain (25%) because infective etiologies like Dengue, Malaria, Enteric fever are common etiologies of thrombocytopenia in tropical countries like India.

In study done by Bhalara et al[56], Paramjit et al[54], Patne et al[57], fever is the most common presenting symptom.

The hemorrhagic manifestation were seen in 14.8 % patients. . Most common bleeding manifestation was seen in skin and mucous membrane (70%) and most common etiology responsible was Dengue fever and ITP.

Most of the patients (71.8%) have platelet counts above 50000/u L, commonest etiology being dengue fever. 20% patients have platelet count between 20000- 50000/u L. Only 8.1% patients had platelet count below 20000/u L commonest etiology being dengue.

CONCLUSION

Thrombocytopenia was more commonly seen in younger age group 21-30 years. About half of total patients were below the age of 30 years. The incidence of thrombocytopenia was more common in males as compared to females. The most common etiology of thrombocytopenia was found to be Dengue fever and liver disease followed by megaloblastic anemia. Less common causes were SLE, ITP, malaria, HIV, enteric fever.

The hemorrhagic manifestation was seen in 15 % patients only. Most common bleeding manifestation were seen in skin and mucous membrane in the form of petechiae, purpura and ecchymosis

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