

A Clinical Study of Febrile Thrombocytopenia in a Tertiary Care Hospital

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Abstract

Thrombocytopenia is the term used to denote decreased platelets and it is an important finding in patients with acute illnesses. The presence of thrombocytopenia should prompt the physician to look for the underlying etiology in order to ensure proper therapy. We in the present study tried to evaluate the patients of thrombocytopenia and the causes of thrombocytopenia and treatment. This prospective cross-sectional study was conducted in the Department of General Medicine Prathima Institute of Medical Sciences, Naganoor, Karimnagar. N=112 patients which included n=62 male and n=50 females were included during the study period. A detailed medical history was obtained and complete General physical examination was done in each case. Laboratory investigations were done in all the cases that included complete blood picture, the examination of smears for MP in thick smears, Dengue serology by IgM and IgG ELISA, Liver function tests and Renal functions test. The results showed that the most important cause of thrombocytopenia was Dengue fever in n=47(41.96%) out of n=112 patients followed by Malaria in n=27(24.1%) of patients. The dengue cases were diagnosed with dengue serology the results showed that most of the patients n=35(74.47%) of total cases were having IgM positive and IgG was found to be positive in n=9(19.15%) of cases. total of n=27 cases diagnosed with malaria. Out of the n=27 most common type of malaria parasite which was found to be Plasmodium vivax in n=16(59.29%) of cases and P.falciparum in n=8 (29.63%) of cases and mixed was found in n=3(11.11%) of cases. thrombocytopenia is a common laboratory finding in febrile patients. Finding the underlying etiology is very important. In this study, two important causative factors for thrombocytopenia were dengue and malaria. Blood transfusion is to be considered when there is spontaneous bleeding present and the count is below 10,000.

Keywords: Thrombocytopenia, clinical study.

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INTRODUCTION

Patients with acute fever along with thrombocytopenia (platelet counts <150,000) is a common presentation in medical wards. The most important causes include Dengue, malaria, chikungunya, autoimmunity, hypersplenism, DIC and enteric fever [1, 2]. Patients with thrombocytopenia are asymptomatic or may be present with fever. Occasionally there is the bleeding manifestation in the form of bruising, purpura, petechiae, epistaxis and gum bleeding. When the platelet counts are below 5000/cumm there may serious life-threatening bleeding in the central nervous system or GIT or genitourinary tracts [3]. Thrombocytopenia results in abnormal platelet plug formation which may lead to defects in hemostasis marked by the increased bleeding time some studies have also shown a significant association between malaria and thrombocytopenia in 40 to 85% of cases [4]. The thrombocytopenia may a result of increased platelet destructions like that in idiopathic

thrombocytopenic purpura, thrombotic thrombocytopenic purpura (TTP), Disseminated Intravascular Coagulation, hemolytic uremic syndrome (HUS), antiphospholipid syndrome hypersplenism and drugs [5]. In a tropical country like India, febrile thrombocytopenia is very common [6]. In fact, the presence of thrombocytopenia may often give a clue to the underlying infections like malaria, dengue, leptospirosis and other viral infections. With this background, we in the present study tried to evaluate the cases of thrombocytopenia detected by hemogram in febrile and non-febrile patients and determine the etiology of the thrombocytopenia and administer appropriate medical therapy and monitor the outcome of the patients.

MATERIAL AND METHODS

This prospective cross-sectional study was conducted in the Department of General Medicine Prathima Institute of Medical Sciences, Naganoor,

Karimnagar. Prior Institutional Ethical committee approval was obtained after submitting the protocol of the study to the committee. Written consent was obtained from all the participants of the study after explaining the nature of the study in the local language. The inclusion criteria were patients of both sexes aged > 10 years diagnosed with thrombocytopenia, those without any prior any underlying systemic diseases. Exclusion criteria were patients less than 10 years old and those on antiplatelet agents or those who have NSAID's for any condition within 10 days prior to the study. Based on the inclusion and exclusion criteria n=112 patients which included n=62 male and n=50 females were included during the study period. A detailed medical history was obtained and complete General physical examination was done in each case. Laboratory investigations were done in all the cases that included complete blood picture, the examination of smears for MP in thick smears, Dengue serology by IgM and IgG ELISA, Liver function tests and Renal functions test. Thrombocytopenia was considered in all cases where the platelet counts were less than 1.5 Lakhs/cumm. Once the diagnosis was reached the

patients were treated accordingly and those requiring platelet transfusions with count <20,000 were given platelet transfusions. Those diagnosed with malaria were given appropriate antimalarial drugs based on the type of the parasite and condition of the host. The patients given transfusion were kept in wards and observed and discharged once they have recovered with platelet counts above 1.5 lakhs. They were followed up for one month after the treatment. All the data was collected and recorded in MS Excel and analyzed using SPSS version 17 on windows format.

RESULTS

A total of n=112 patients were included diagnosed with various conditions including thrombocytopenia admitted in the Medical college hospital. Out of the n=62 male and n=50 female. Based on the group number of patients were n=36(32.14%) from 10-15 years followed by 16-20 years having n=26(23.21%) of the patients. The other group wise and sex wise distribution of the cases in the study are given in Table-1.

Table-1: Age and sex wise Distribution of Patients Studied

Age Group	Male	Female	Total	Percentage
10 – 15	21	15	36	32.14
16 – 20	15	11	26	23.21
21 – 25	8	9	17	15.18
26 – 30	6	4	10	8.93
31 – 35	7	8	15	13.39
36 – 40	5	3	8	7.14
Total	62	50	112	100

The cause of thrombocytopenia and other illnesses were studied. The results showed that the most important cause of thrombocytopenia was Dengue fever in n=47(41.96%) out of n=112 patients followed by

Malaria in n=27(24.1%) of patients and undetermined illnesses were present in n=16(14.29%) of patients. The other conditions and distribution of the cases are given in Table-2.

Table-2: Distribution of cases of thrombocytopenia based on sex and cause

Etiology	Male	Female	Total	Percentage
Malaria	18	9	27	24.11
Dengue Fever	26	21	47	41.96
Enteric Fever	8	6	14	12.5
Undetermined illness	5	11	16	14.29
Septicemia	3	1	4	3.57
HIV	2	2	4	3.57
Total	62	50	112	100

The total platelet count was done in all the cases it was found that most of the patients n=58 (51.78%) out of the total n=112 were having the platelet counts in the range from 50,000 to 100,000. Those counts below 20,000 were having frank bleeding

manifestation like petechiae/epistaxis/hematemesis/rash/bleeding gums however one patient with the count of < 20,000 did not show any bleeding manifestation given in Table-3.

Table-3: platelet counts in the patients along with bleeding manifestations

Total Platelet count	Sex		Total	Bleeding manifestations	
	Male	Female		No	Yes
>100,000	21	15	36	35	01
50,000 – 100,000	28	30	58	54	04
20,000 – 50,000	9	2	11	6	5
< 20,000	4	3	07	1	6
Total	62	50	112	96	16

The distribution of malaria and the type of malaria was studied in the total of n=27 cases diagnosed with malaria. Out of the n=27 most common type of malaria parasite which was found to be

Plasmodium vivax in n=16(59.29%) of cases and *P.falciparum* in n=8 (29.63%) of cases and mixed was found in n=3(11.11%) of cases.

Table-4: The distribution of malaria positive cases in the study

Type of Malaria	Male	Female	Total	Percentage
Vivax	11	05	16	59.26
Falciparum	05	03	08	29.63
Mixed	02	01	03	11.11
Total	18	09	27	100

The dengue cases were diagnosed with dengue serology the results showed that most of the patients n=35(74.47%) of total cases were having IgM positive and IgG was found to be positive in n=9(19.15%) of

cases and both IgM and IgG were positive in n=3(6.38%) of cases out of the total n=47 cases of Dengue in the study given in Table-5.

Table-5: The distribution of cases by Dengue positive serology

Dengue serology	Male	Female	Total	Percentage
IgM +ve	20	15	35	74.47
IgG +ve	05	04	09	19.15
IgM, IgG both +ve	01	02	03	6.38
Total	26	21	47	100

DISCUSSION

The present study was done in order to determine the etiology of thrombocytopenia. The commonest cause of thrombocytopenia in our study was Dengue fever in 41.96% of cases followed by malaria in 24.11% of cases. Nair PS *et al.*, studying in New Delhi found the leading cause of the thrombocytopenia to be septicemia followed by enteric fever and dengue [6]. In our study 51.78% of patients were found to have platelet counts from 50,000 – 100,000 Sayeeda Afzal *et al.*, [7] in their study found the majority of thrombocytopenia cases were with platelet counts 50,000 to 150,000. Nair PS *et al.*, [6] have found 56.8% of cases with platelet counts between 50,000 to 100,000 and 25.7% of cases with counts between 20,000 and 50,000. The bleeding manifestation in our study was seen in cases having platelet counts below 20,000. Syeeda Afzal *et al.*, [7] found the cases of bleeding manifestation in 18% of patients and spontaneous bleeding in 7 cases. Raikar *et al.*, have reported that bleeding manifestation is not completely related to platelet count [8]. Studies have shown that there is a role of the fibrinolytic system which is responsible for bleeding manifestations in dengue fever in addition to the thrombocytopenia and APTT prolongation [9]. In the present study, one patient with platelet count

<20,000 did not have bleeding manifestations. In our study, most of the cases were the age group 10-15 years followed by 16-20 years having n=26(23.21%) of the patients. India is endemic to diseases like malaria; dengue and enteric fever majority of cases in our study were found to be affected by dengue and malaria. Gandhi AA *et al.*, [10] found that dengue and malaria were the common causes of the febrile thrombocytopenia in the agreement of the results of the present study. The physical examination of patients showed splenomegaly, and sometimes jaundice associated with thrombocytopenia similar observations were made by Bizzaro N *et al.*, [11]. In the initial phases of malaria the platelet agglutination due to endothelial activation causes the release of von-Willebrand factor which causes thrombocytopenia. However, the thrombocytopenia in malaria is rarely severe and treatment must be focused on the eradication of the malarial parasite. Viruses of dengue produce thrombocytopenia by various mechanisms some of which a result of direct results of viral invasion, toxic effects of viral proteins on thrombopoiesis and virus-induced destruction of platelets. Thrombocytopenia induced by dengue is a cause of concern as it increases the risk of bleeding and bone marrow suppression. The platelet transfusions are not routinely recommended in

the management of dengue fever [12]. As per the recent WHO & NVBDCP guidelines, platelet transfusions are not indicated unless there are bleeding manifestations or platelet count is less than 10,000/cumm. Thus this study finds that the most important causes of thrombocytopenia in our group of patients are Dengue and Malaria. The most common age group involved was 10–15 years. While most of the cases were symptomatic with fever some cases were asymptomatic and in such cases, immediate recognition and etiology and prompt treatment are necessary to decrease morbidity and mortality.

CONCLUSION

Within the limitations of the present study, it can be concluded that thrombocytopenia is a common laboratory finding in febrile patients. Finding the underlying etiology is very important. In this study, two important causative factors for febrile thrombocytopenia were dengue and malaria. Bleeding manifestations are rare in patients with platelet counts between 50,000 to 100,000 and blood transfusion is to be considered when there is spontaneous bleeding present and the count is below 10,000.

Conflict of Interest: None

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Ethical Permission: Obtained

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