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CLINICAL AND ETIOLOGICAL PROFILE OF FEBRILE ILLNESS WITH THROMBOCYTOPENIA

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Abstract:

Introduction: With the raising of the body that exceeds the normal variation which occurs in conjunction with an increase hypothalamic set point is known as fever. Thrombocytopenia is a common clinical condition which is caused by infectious and noninfectious etiology. This may results from one or more of these three processes: decreased bone marrow production; Sequestration, usually in an enlarged spleen; and /or Increased platelet destruction. Either inherited or acquired there may be disorders of production. Showing low platelet count is obtained. Thrombocytopenia refers to decrease in platelet count below 1.5 lakh/microliter. Especially in tropical country like India, infectious causes prevail and are usually associated with fever; also drugs, Hypersplenism, DIC, autoimmunity and malignancy are among the leading causes of thrombocytopenia. Hence, platelet counts are liable to error, a single platelet count that is lower than normal should be confirmed by a second count. It should be also confirmed by inspecting the blood film. **Aim:** The aim of this study is to evaluate clinical and etiological profile of febrile illness with thrombocytopenia. **Material and methods:** This is prospective study conducted in Department of General Medicine of Prasad Institute of Medical Sciences and Prasad Hospital Lukhnow, India during 1 year. Total 150 patients were included in this study. Patients with more than 12 year of age were presenting with thrombocytopenia platelet count <1 lack/ mm^3 (with or without clinical bleeding). In all the patients Detailed physical examination was done as well as Detailed clinical history was noted in each patient including site of bleeding, past history of drug and major medical illness as chronic thrombocytopenia, malignancy, patients on chemotherapy were also noted. Routine Investigation in form of platelet counts, CBC, RFT, LFT, Coagulation Profile and chest x-ray etc were done on the day of presentation. **Result:** Maximum number of cases were seen in 21-30 years of age group (27.3%) followed by 31-40 years (24.0%) and 90 (60.0%) were males and 60 (40.0%) were females. It was seen that most common cause of thrombocytopenia was infection dengue (28%), malaria (23%) and followed by septicemia (12%), enteric fever (9%), UTI (8%) and so on.. It is also shown that platelet count less than 20,000/mm^3 is maximum in number of patient and also categorized patients with low platelet and etiology into mild with platelet 50,000/mm^3 -1,00,000/mm^3, moderate with plate 20,000/mm^3 -50,0000/mm^3 and severe with plate< 20,000 mm^3. out of 150 patients, 17 (11%) had Hemorrhagic manifestations, of which most common site of bleeding was skin and mucous membrane (35%) followed by Bleeding per vagina(24%), gum bleeding (12%) and Hematuria (12%) and so on. **Conclusion:** Prevalence of febrile thrombocytopenia is more due to infectious etiology are in young, in male. The commonest cause of febrile thrombocytopenia is dengue followed by malaria and septicemia. There is no correlation to mortality and morbidity with Thrombocytopenia. The main

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cause of Thrombocytopenia was dengue fever and majority patients had platelet count < 10,000/mm^3 and septicemia was commonest etiology.

Keywords: Thrombocytopenia, Fever, Platelet, Platelet, Dengue

INTRODUCTION

With the raising of the body that exceeds the normal variation which occurs in conjunction with an increase hypothalamic set point is known as fever. An A.M. temperature of > 37.2 °C (>98.9°F) or a P.M. temperature of >37.7 °C (>99.9°F) would define fever[i]. Thrombocytopenia is a common clinical condition which is caused by infectious and noninfectious etiology. This may results from one or more of these three processes: decreased bone marrow production; Sequestration, usually in an enlarged spleen; and /or Increased platelet destruction. Either inherited or acquired there may be disorders of production. For evaluating patient with thrombocytopenia, first rule out pseudothrombocytopenia, particularly in a patient without an apparent cause for the thrombocytopenia and to review the peripheral blood smear. Pseudothrombocytopenia is an in vitro artifact resultin from agglutination via antibodies usually IgG and also IgM and IgA. Showing low platelet count is obtained[ii]. Thrombocytopenia refers to decrease in platelet count below 1.5 lakh/microliter[iii]. In clinical practice with variable clinical expression Thrombocytopenia is the commonest abnormality encountered. There may be large vary in symptomatology and underlying cause may be either inconsequential or life threatening[iv]. It is the most common cause of abnormal bleeding. There is extreme lack of equilibrium in the balance between platelet production, distribution and destruction when develops Thrombocytopenia. In some disorder More than one component may be affected[v]. Especially in tropical country like India, infectious causes prevail and are usually associated with fever; also drugs, Hypersplenism, DIC, autoimmunity and malignancy are among the leading causes of thrombocytopenia[vi]. Abnormality of platelet plug formation that characterized by prolonged bleeding time and leads to defects in primary homeostasis and in findings of the characteristic physical examination are purpura , petechia and bleeding from other sites. Different studies have shown significant association between thrombocytopenia and malaria; the incidence of which ranges from 40.5-85%[vii]. Thrombocytopenia associated with fever is known as febrile thrombocytopenia. Diseases which commonly present with fever and thrombocytopenia are malaria, septicemia, typhoid, rickettsial infections, leptospirosis, borreliosis, arbovirus such as dengue or yellow fever, rodent-borne viruses such as Hanta and Lassa fever, human immunodeficiency virus (HIV), visceral leishmaniasis and TTP-HUS[viii]. Hence, platelet counts are liable to error, a single platelet count that is lower than normal should be confirmed by a second count. It should be also confirmed by inspecting the blood film[ix,x]. The life span of platelets is about 8- 10 days once they enter the circulation. About 10% of the population is destroyed each day[xi]. The aim of this study is to evaluate clinical and etiological profile of febrile illness with thrombocytopenia.

Material and methods:

This is prospective study conducted in Department of General Medicine of Prasad Institute of Medical Sciences and Prasad Hospital Lukhnow, India during 1 year. Total 150 patients were included in this study. Patients with more than 12 year of age were presenting with thrombocytopenia platelet count <1 lack/ mm^3 (with or without clinical bleeding). Patient with fever without thrombocytopenia, pre established diagnosis of chronic thrombocytopenia, malignancy; patients on chemotherapy were excluded in this study. In all the patients Detailed physical examination was done as well as Detailed clinical history was noted in each patient including site of bleeding, past history of drug and major medical illness as chronic thrombocytopenia, malignancy, patients on chemotherapy were also noted. Routine

Investigation in form of platelet counts, CBC, RFT, LFT, Coagulation Profile and chest x-ray etc were done on the day of presentation. Platelet counts were done repeat in those patients with marked thrombocytopenia until normal or near-normal values reached. The special investigations like Widal, RA Factor, Dengue Serology, Coomb's test, Bone Marrow Examination, G6PD Test etc were done if the evaluation demanded. All the patients were treated with specific treatment and platelet transfusion was given to those patients if clinical evidence of bleeding was recorded. The diagnoses made in each patient were recorded in separate proforma for data.

Result:

Table 1: Age wise distribution of study population

Age in group (years)	No of patients	Percentage
12-20	32	21.3
21-30	41	27.3
31-40	36	24.0
41-50	25	16.7
51-60	9	6.0
61-70	7	4.7

Maximum number of cases were seen in 21-30 years of age group (27.3%) followed by 31-40 years (24.0%) as shown in above table.

Table2: sex wise distribution of study population.

Gender	No of patients	Percentage
Male	90	60
Female	60	40

The above table showed 90 (60.0%) were males and 60 (40.0%) were females.

Table 3: Etiology of Thrombocytopenia with platelet count.

Causes	No of patients	%	Platelet count <10,000/mm^3	Platelet count >10,000/mm^3	Platelet count 20,000/mm^3 to 50,000/mm^3	Platelet count >50,000/mm^3 but <1,00,000/mm^3
Dengue	42	28	18	10	8	6
Malaria	35	23	6	11	10	8
Septicemia	18	12	4	3	6	5
Enteric fever	14	9	4	2	3	5
UTI	12	8	2	2	3	5
Human immunodeficiency virus (HIV)	7	5	2	0	3	2
Rheumatoid arthritis (RA)	6	4	2	0	3	1
Megaloblastic anemia	2	1	1	0	0	1
Iron deficiency anemia	6	4	0	1	2	3
Chronic liver disease	3	2	0	0	1	2
Others	5	3	1		2	2

It was seen that most common cause of thrombocytopenia was infection dengue (28%), malaria (23%) and followed by septicemia (12%), enteric fever (9%), UTI (8%) and so on.. It is also shown that platelet count less than 20,000/mm^3 is maximum in number of patient and also categorized patients with low platelet and etiology into mild with platelet 50,000/mm^3 -1,00,000/mm^3, moderate with plate 20,000/mm^3 -50,0000/mm^3 and severe with plate< 20,000 mm^3 as shown in above Table.

Table 4: Hemorrhagic manifestations associated with thrombocytopenia

Hemorrhagic Manifestations	No. of patients(n=17)	Percentage
Skin and Mucous membrane	6	35
Gum bleeding	2	12
Bleeding per vagina	4	24
Hematuria	2	12
Bleeding from IV-line site	1	6
Multisite bleeding	2	12

out of 150 patients, 17 (11%) had Hemorrhagic manifestations, of which most common site of bleeding was skin and mucous membrane (35%) followed by Bleeding per vagina(24%), gum bleeding (12%) and Hematuria (12%) and so on as shown in above table.

Discussion:

In tropical countries Thrombocytopenia is raising problem. Thrombocytopenia is defined as an abnormal number of platelets in the circulating blood. A normal human platelet count ranges from 1,50,000 /mm3 to 4,50,000 platelets/mm3 of blood. Both infectious and non-infectious diseases cause may thrombocytopenia. The diseases that cause thrombocytopenia most common etiology responsible are dengue/dengue-like feve , malaria, septicemia, enteric fever UTI and infections. In Dengue fever due to bone marrow suppression caused Thrombocytopenia (i.e., decreased platelet synthesis and increased immune mediated destruction of platelets)[xii]. Autoimmune thrombocytopenia occurs immediately or during after acute viral infections. HIV associated thrombocytopenia arise through multiple mechanisms decreased platelet production, increased platelet destruction due to HIV-mimetic antiplatelet antibodies and use of activated platelets is increased[xiii]. In this study Malaria (23%) was the second common cause responsible for febrile thrombocytopenia which is similar to other study. According to Jadhav et al Malaria is commonly accompanied by mild to moderate thrombocytopenia[xiv]. due to the higher prevalence of these infections during rainy and early winter season as well as their endemicity Dengue and Malaria were the more frequent causes for thrombocytopenia. Septicemia (12%) was the third common cause in this study which is similar to study of Lee GR et al[xv]. In our study, 17(11%) patients out of total 150 patients had bleeding manifestations. Skin and Mucous membrane (35%) was seen most common bleeding manifestation followed by Bleeding per vagina (24%), gum bleeding (12%) , Hematuria (12%) which is similar to study by Dr. Srinivas et al[xvi]. according to study of Patil et al petechiae was the major manifestation73.9% followed by spontaneous bleeding (26.9%)[xvii]. Tropical countries like India endemic for dengue, malaria and enteric fever majority of patients showed splenomegaly, jaundice associated with thrombocytopenia which is similar to study observed by Bizzaro N et al[xviii]. there is highest and lowest platelet count in male and female patient but there was no significant difference between sex and platelet count in our study as like this similar findings were also observed in study of Godhani UR et al[xix].

Conclusion:

Prevalence of febrile thrombocytopenia is maximum due to infectious etiology are in young, in male. Early winter season and rainy with summative effect of endemicity disease in

particular geographical region. The commonest cause of febrile thrombocytopenia is dengue followed by malaria and septicaemia. There is no correlation to mortality and morbidity with Thrombocytopenia. Infectious diseases show seasonal variation with incidence Thrombocytopenia. The main cause of Thrombocytopenia was dengue fever and majority patients had platelet count < 10,000/mm^3 and septicemia was commonest etiology. Rapid diagnosis and immediate specific treatment of etiology of febrile thrombocytopenia with preservation of platelet count and haemostatic function grant good recovery.

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