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CLINICAL AND ETIOLOGICAL PROFILE OF FEBRILE THROMBOCYTOPENIA: A HOSPITAL-BASED STUDY FROM ACSR GOVT MEDICAL COLLEGE,NELLORE.

Medicine

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ABSTRACT

Background: The normal blood platelet count is 150,000–450,000/L .Many viral and bacterial infections result in thrombocytopenia and are the most common noniatrogenic cause of thrombocytopenia . A platelet count of approximately 5000–10,000 is required to maintain vascular integrity in the microcirculation.

Aims: To evaluate clinical profile, etiological profile and outcome of patients with febrile thrombocytopenia .

Materials & Methods: 219 patients, aged more than 15 years, presented with febrile thrombocytopenia were evaluated for clinical manifestations, investigated in detail for etiological cause and treated symptomatically and specifically .

Results: Age and Sex distribution: Febrile thrombocytopenia affects all age groups but was more common in 15-45 years age group (82.95%) Male outnumbered Female (80%) in present study. Etiology of disease: unidentified Viral fever (84.47%), Dengue (12.38%),Malaria (3.8%) were the common etiologies of febrile thrombocytopenia in present study. Severe bleeding manifestations were seen only 5.4% of patients with severe thrombocytopenia(platelet count less than 25,000).Mild to moderate bleeding manifestations were observed in 13%of patients.Platelet transfusions were given 25%of patients. Outcome: 98.15% patients had good recovery.

Conclusion: Undifferentiated viral fevers , Dengue and Malaria fever constitute majority of etiologies in cases of fever with thrombocytopenia in present study.Risk of bleeding increase when platelet count decreases below 20000.Out come is good in most of the patients.

KEYWORDS

Thrombocytopenia, Fever, Bleeding.

INTRODUCTION

Fever is an elevation of body temperature that exceeds the normal daily variation and occurs in conjunction with an increase in hypothalamic set point. An A.M. temperature of > 37.2 ^{0}c (>98.9^{0}F) or a P.M. temperature of >37.7 ^{0}c(>99.9^{0}F) would define fever. [1]

The normal blood platelet count is 150,000–450,000/L. Thrombocytopenia is defined as a reduction in the peripheral blood platelet count below the lower normal limit of 150000 /mm3. [2] Platelets circulate with an average life span of 7 to 10 days.

Activated platelets undergo release of their granule contents, which include nucleotides, adhesive proteins, growth factors, and procoagulants that serve to promote platelet aggregation and blood clot formation and influence the environment of the forming clot. During platelet aggregation, additional platelets are recruited to the site of injury, leading to the formation of an occlusive platelet thrombus. The platelet plug is stabilized by the fibrin mesh that develops simultaneously as the product of the coagulation cascade.

Thrombocytopenia results from one or more of three processes: (1) decreased bone marrow production; (2) sequestration, usually in an enlarged spleen; and/or (3) increased platelet destruction.

Many viral and bacterial infections result in thrombocytopenia and are the most common noniatrogenic cause of thrombocytopenia. This may or may not be associated with laboratory evidence of disseminated intravascular coagulation (DIC), which is most commonly seen in patients with systemic infections with gram-negative bacteria. Infections can affect both platelet production and platelet survival.[3]

Patients with history fever in tropical country like India usually have an infectious etiology and many of them have associated thrombocytopenia. Infections like dengue, typhoid, malaria, and leptospirosis are some of the common causes of febrile thrombocytopenia [4].

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 pin-point, nonblanching hemorrhages and are usually a sign of a decreased platelet number and not platelet dysfunction. Wet purpura, blood blisters that form on the oral mucosa, are thought to denote an increased risk of life-threatening hemorrhage in the thrombocytopenic patient. Excessive bruising is seen in disorders of both platelet number and function.[3]

Patients with Platelet Count >100 (x 103/L) are symptomatic, Platelet Count 50 to 100(x 103/L) present with Haemorrhage after injury, Platelet Count 20 to 50(x 103/L) present with Skin purpura, Platelet Count <20(x 103/L) Spontaneous bleed from mucous membrane, intracranial bleeding.*Pseudothrombocytopaenia is false low platelet count (platelets are not counted accurately); it is suspected when there is no bleeding despite very low platelet count.[2]*. Aim of the present study is to evaluate clinical and etiological profile of febrile thrombocytopenia.

Mataterials and methods

A study was carried out on total of 219 patients aged > 15 years with fever and thrombocytopenia admitted to ICU and medicine ward, ACSR Govt Medical College ,Nellore ,Andhra Pradesh. Patients admitted between the period September 2017-October 2017 were included in the study.

Inclusion Criteria :

All new patients aged more than 15 years, with fever (Temperature >99.9^{0}F) less than one week duration with thrombocytopenia (Platelet count less than 1,50,000/mm3) were included in the study.

Exclusion criteria:

patients with thrombocytopenia without fever, Already diagnosed cases of hematologic disorders or on immunosuppressive agents presented/admitted with febrile thrombocytopenia, diagnosed cases of platelet disorder and dysfunction, patients on drug causing thrombocytopenia, patients with cirrhosis and chronic liver disease were excluded.

Routine laboratory evaluation like Complete blood count, Platelet count, peripheral smear for cell morphology, peripheral smear for malarial parasite, Dengue NS1 Ag /Dengue IgM Ab test, Prothrombin time with International Normalized Ratio(INR),activated partial Thromboplastin time, RBC indices(Mean Corpuscular Volume MCV, Mean Corpuscular Hemoglobin MCH, Mean Corpuscular Hemoglobin Concentration MCHC),liver function test, renal function test, urine routine, Electrocardiograph (ECG),X ray chest, Ultrasonography (USG) abdomen. serological study for Human Immunodeficiency Virus (HIV) infection were done to all patients.

Baseline platelet counts were done on the day of admission repeated on alternate days until normal or near normal platelet count reached. In patients with bleeding manifestations or with platelet count <50000/mm3 ,repeat platelet count were done daily till rising trends of platelet was achieved. All patients were given supportive treatment and specific treatment after definitive diagnosis. Patients with platelet count less than 20000/mm3 or with bleeding manifestations were treated with platelet concentrate. Patients were followed for their duration of stay in hospital and outcomes were analyzed.

RESULTS:

Total of 219 patients of fever of one week duration with thrombocytopenia were evaluated for clinical manifestations, investigated in detail for etiological cause and treated symptomatically and specifically . The results are as follows. Incidence of fever with thrombocytopenia with its Gender distribution is shown in Table no.1. Fever with thrombocytopenia was slightly common in females. And among its causes unidentified viral infections formed the largest group (85%).) followed by Dengue in 12%and Malaria in only 03% in present study and all the Malaria cases were caused by vivax.

Table:1 Incidence of Thrombocytopenia with relation to sex

Sex	No. of cases	Percentage
Male	94	43 %
Female	125	57 %
Total	129	100 %

Table:2 Incidence of Thrombocytopenia in different infections

S.No.	Diagnosis	No. of Cases	Percentage
1.	Unidentified viral fevers	185	85%
2.	Dengue	26	12%
3.	malaria	8	03%
Total		219	100%

Table:3 Incidence of Thrombocytopenia with relation to Age

Age Distribution	No. of Cases	
	Male	Female
15-25 Yrs	32	41
26-35 Yrs	30	32
36-45 Yrs	16	27
46-55 Yrs	10	10
56-65 Yrs	04	11
Above 65 Yrs	02	04

Febrile thrombocytopenia affects all age groups but was more common in 15-45 years age group (82.95%) Male outnumbered Female (80%) in present study.

Table:4 Incidence of bleeding manifestations with relation to Thrombocytopenia

Platelet range	No of patients with bleeding manifestations	Percentage	
	Male	Female	
<15000-30000	07	05	5.47%
31000-60000	12	10	10.04%
61000-90000	Nil	Nil	
>90000-<150000	Nil	Nil	

All the bleeding manifestations were seen with mean platelet count ≤50,000/cumm. Severe bleeding manifestations were seen only 5.47% of patients with severe thrombocytopenia (platelet count less than 25,000).Mild to moderate bleeding manifestations gum bleeding, epistaxis were observed in 13%of patients. one female patient has menorrhagia Platelet transfusions were given 25%of patients. Outcome is good, only two patients expired with severe bleeding manifestations. Even though platelet count was less than 20,000/mm3 some of the patients had no bleeding manifestations but platelet transfusions were given.

DISCUSSION:

Many viral and bacterial infections result in thrombocytopenia and are the most common noniatrogenic cause of thrombocytopenia. .3 Patients with Platelet Count >100 (x 103/L) are symptomatic, Platelet Count 50 to 100(x 103/L)present with Hemorrhage after injury, Platelet Count 20 to 50(x 103/L) present with Skin purpura, Platelet Count <20(x 103/L) Spontaneous bleed from mucous membrane, intracranial bleeding.*Pseudothrombocytopaenia is false low platelet count (platelets are not counted accurately); it is suspected when there is no bleeding despite very low platelet count.[2]* Transfusion of platelet concentrate (1–2 U/10 kg) should be considered when the platelet count is <50 000/μL in a bleeding patient or <20 000/μL without bleeding. The platelet count should generally rise by at least 2000/μL per unit of platelets transfused.[5]

In the present study, 219 patients were included, who were admitted with a history of fever and on peripheral smear examination showed thrombocytopenia. All patients were aged > 15 years. Among 219cases, the commonest etiology for fever with thrombocytopenia was unidentified viral fever (84.47%%), followed by Dengue and Malaria in (12.38%), (3.8%) respectively compared to other study done hy Smita Surendra. Masamatti et al where Dengue (48.28%)most common cause [6]. Dengue and Malaria were the more frequent causes(81.93%) done by Modi T et al: [7] Incidence is higher in females (57 %) compared to males (43%). The commonest age group affected was between 15 to 45 years (80%). Severe bleeding manifestations were seen only 4% of patients with severe thrombocytopenia(platelet count less than 25,000).Mild to moderate bleeding manifestations gum bleeding,epistaxis were observed in 13%of patients. Platelet transfusions were given 25%of patients who had platelet count less than 20,000/mm3 with or without bleeding manifestations and those with bleeding manifestations with plateletcounts above 20,000/mm3.Outcome is good in most of the patients. Compared to study done by Smita Surendra. Masamatti et al ,where patients who showed < 50,000 to <10,000 were all transfused with platelets and a definite increase in the platelet count and better patient outcome was noted.[6]

Limitations:

This study was done in very short duration which might not show the seasonal variations .As this is hospital based study this study could not include all the patients of febrile thrombocytopenia of given locality or population .

Conclusion:

Undifferentiated viral fevers constitute the most common cause for fever with thrombocytopenia in majority of the patients in present study, followed by Dengue and Malaria fever in contrast to many other studies done from various regions. Risk of bleeding increase when platelet count decreases below 20000/mm3.Out come is good in most of the patients in present study with complete recovery at discharge. All the cases of fever should be evaluated for detailed blood picture along with baseline platelet count, as it is very important investigation to establish the correct diagnosis and also helps for early intervention and prevents the fatal outcome.

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