To Study Clinical Evaluation and Outcome of Patients with Febrile Thrombocytopenia

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Abstract- The aim was to the study clinical evaluation and outcome of patients with febrile thrombocytopenia. Methodology:100 patients of fever with thrombocytopenia. Malaria was the commonest cause of febrile thrombocytopenia. followed by Dengue and viral fever.Maximum percent of bleeding seen at 5×103 to 10×103/cumm platelet count, then 11×103 to 20×103/cumm followed by 21×103 to 30×103/cumm.Out of 100 patients 23 patients showd bleeding manifestations. The Commonest form of bleeding manifestation was petechiae in 17 patients followed by hematuria, per rectal bleeding and epistaxis in 3,2 and 1 patient respectively.Good recovery was noted in 95% patients and mortality noted in 5% patients. Septicemia accounted for 75% mortality. We conclude that the febrile illness patients should be investigated for platelet count whether they have bleeding manifestations or not. Strong probability of dengue fever or other common causes like malaria, viral fever and leptospirosis should be kept in mind in any case of fever and thrombocytopenia as a decreased platelet count can be severe without external manifestation and lead to a bad prognosis if not treated with platelet transfusion early.

Index Terms- Febrile thrombocytopenia, Malaria, Bleeding manifestation, Mortality

I. INTRODUCTION

Fever is the most ancient hallmark of disease. Fever is known as pyrexia from Greek "pyretus" meaning fire; Febrile is from the Latin word Febris, meaning fever.[1]

It is a frequent medical sign that describes increase in internal body temperature to the level above normal. It is considered as one of the body's immune mechanisms to attain neutralization of perceived threat inside the body[2].

It is a symptom caused by a variety of illnesses. Every one of us has experienced the wave of chills and exhaustion that a fever causes. Fever usually occurs in response to an infection or inflammation. However, many other causes are possible, including drugs, poisons, cancer, heat exposure, injuries or abnormalities in the brain, or disease of the endocrine (hormonal or glandular) system.

A fever rarely comes without other symptoms and sign. It is often accompanied by specific complaints or pattern. Many times it is associated with low platelet count.

The normal platelet count is 150000-450000/cumm. Thrombocytopenia is defined as platelet count less than 150000/cumm. It results from either decreased production, increases sequestration or destruction of platelets.[3]The causes for thrombocytopenia are varied and range from idiopathic, infectious to malignancies. Patients with an acute febrile illnesses in a tropical country like India usually have an infectious etiology and may have associated thrombocytopenia. Infections like malaria, dengue, leptospirosis, typhoid are some of the common causes of fever with thrombocytopenia. If we can analyse the low platelet count as one of the diagnostic marker of some common infections, we can narrow the differential diagnosis.

Patients having thrombocytopenia with fever many times do not have bleeding manifestations. Hence study of correlation between platelet counts and hemorrhagic manifestations will help us to know the correct time for infusion of platelets, thus avoiding unnecessary platelet transfusion.

II. METHODOLOGY

The patients admitted with fever and thrombocytopenia, in D.Y. Patil hospital Kolhapur were included in the study. A careful history was recorded with general physical examination and detailed systemic examination. This was followed by routine investigations which included complete blood count, total leucocyte count. renal function test, liver function test, PT and INR, urine routine, ECG, USG, X-ray chest were done where ever indicated.

Repeat platelet count was done on day 0, 3, 5 and then on discharge in patients with platelet count between 40000/cumm – 150000/cumm. In patients with platelet count less than 40000/cumm – or having bleeding manifestation platelet count was repeated daily for at least 3 days or till rising trend of platelet is seen.

Special investigations were done in order to achieve the diagnosis. Once the specific diagnosis was reached the patients were treated for it specifically and symptomatically. Platelet transfusion were considered in patients with platelet count of 10000/cumm as absolute indication. Bleeding manifestation with any platelet count was another absolute indication for platelet transfusion.

The temperature was measured orally by clinical thermometer. The thermometer was kept for 2 min and patient was asked to breath from nose.

The platelet counting was done by 3 methods.

- Crude method: A film was made from EDTA blood and stained with romanswky stain. The count was considered adequate if there was l platelet found per 10-

30 red cells. At 1000X magnification 7-20 platelet/oil immersion field.

- 3 part cell counter is an automated cell counter with features of counting RBC's, WBC's, platelets, blood indices and Hb concentration all together.
- Direct visualization: 0.02 ml EDTA blood was diluted with 2 ml of diluting fluid followed by charging the Neubaur'schamber with the fluid and number of platelet was counted.

We need to rule out 'pseudo thrombocytopenia'. Platelet contains fine granules that usually fill the cytoplasm. Occasionally, granules are concentrated in centre (the granulomere) and surrounded by a pale cytoplasm (hyalomere) which are probably activated platelets, the appearance resulting from microtubular band. In EDTA blood the fraction of platelet that exceed 3μm in diameter and fraction of platelets that are hypo granular are both increased if films are made immediately or after 60 min of collection leading to false reading. This artifact was reduced with the films made at 10 min to 60 min after blood is drawn.

III. RESULTS

Causes of febrile thrombocytopenia

The causes of thrombocytopenia in our study are Malaria 54% followed by viral fever 17%, Dengue 15%, enteric fever 6% and septicemia 4%

Table 1: Causes of febrile thrombocytopenia

Diagnosis	Number of Subjects (n)
Chikungunya	2
Dengue	15
Enteric fever	6
Leptospira	2
Malaria	54
Septicemia	4
Viral fever	17
Grand Total	**100**

Correlation of bleeding manifestations with platelet count.

There was a decreasing trend seen in bleeding manifestations as platelet count increased Maximum bleeding count was seen in range of 5000- 10000/cumm, then 11000-20000/cumm followed by 21000-30000/cumm. There was no bleeding manifestation at counts more than 50000/cumm.

Table no 2: Correlation of bleeding manifestations with platelet count

PLT count (cumm)	Bleeding	Total no. patients	%
5000-10000	2	2	100
11000-20000	7	8	87.5
21000-30000	5	6	83.3
31000-40000	3	5	60
41000-50000	6	15	40

Number of patients showing different types of bleeding manifestations

a) Out of 100 patients 23 patients showed bleeding manifestations.
b) Petechiae were seen in 17 patients as a major bleeding manifestations followed by 3 patients having hematuria and then 2 patients with per rectal bleed.
c) The mean platelet count at which each of these manifestations were seen are summarized in the table above. Petechiae at an average of 31000/cumm, while hematuria at an average of 36000/cumm.

Table no 3: Number of patients showing different types of bleeding manifestations

Bleeding manifest	Number of subjects	Mean platelet count (cumm)
Epistaxis	1	12000
Hematuria	3	36000
Petechiae	17	31000
PR bleed	2	36000

Outcome and Follow ups

Good outcome was seen in 95% patients with increasing trends in platelet count at the time of discharge. Mortality was noticed in 5% of patients. Major incidence of mortality was seen in patients of septicemia almost 60% followed by malaria and viral fever.

Table 4: Outcome and Follow ups

Diagnosis	Good	Mortality	Grand Total
Chikungunya	2	-	2
Dengue	15	-	15
Enteric fever	6	-	6
Leptospirosis	2	-	2
Malaria	53	1	54
Septicemia	1	3	4
Viral fever	17	1	17
Grand Total	**95**	**5**	**100**

IV. DISSCUSSION

Comparison of cause of thrombocytopenia

The causes of febrile thrombocytopenia in our study was Malaria 54% followed by Viral fever 17%, Dengue 15%, enteric 6% and septicemia 4%.(table 5) Similar results were obtained in Srinivas study[4] while Nair study[5] had septicemia as the major cause of thrombocytopenia.

Table no. 5 Comparison of cause of thrombocytopenia

Diagnosis	Nair Study[4](%)	Srinivas study[5] (%)	Present study
Septicemia	26	19	4
Enteric fever	15	24	6
Dengue	14	14	15
Malaria	09	41	54
Others	18	2	21

Comparison of bleeding manifestation

Out of 23 patients maximum patients presented with petechiae (17 cases i.e.73.9%) which was followed by spontaneous bleedings (6 cases i.e.26.9%).(Table 6) Compared to study by P.S. Nair et al[5] spontaneous bleeding in 77.78% was a major manifestation followed by petechiae/purpura accounting for (22.22%) While in a similar study by Dr. Srinivaset al[4]purpura (63%) was the commonest bleeding manifestations followed by spontaneous bleeding (37%)

Table no. 6 Comparison of bleeding manifestation:

Bleeding manifestations	Nair study[5]	Srinivas study[4]	Present study
	%	%	%
Present	41.3	49	23
Absent	58.7	51	77

Comparison of outcome of patients

Good outcome was seen in 95% patients with increasing trends in platelet count at the time of discharge. Mortality was noticed in 5% of patients. Major cause for mortality was septicemia in 60% patients followed by malaria and viral fever.

In the study by Srinivaset al[4] septicemia accounted for 78% and dengue accounted for 22% of mortality.

During the course of follow up platelets showed increasing trends in 61% patients and continuously decreasing trends in 39% patients while in the study by Srinivaset al[4] the follow up platelets showed increasing trends in 63.3% patients and continuously decreasing trend was seen in 36.7% patients.

Table no.7 Comparison of outcome of patients

	Srinivas study[4]	Present study
Septicemia	78%	60%
Malaria	---	20%
Dengue	22%	---
Others	---	20%

V. CONCLUSION

Malaria was the commonest cause of febrile thrombocytopenia. Bleeding manifestation risk increases when platelet count decreases< 20×10^3/cumm.Petechiae was the commonest presentation of bleeding manifestation in febrile thrombocytopenia which was followed by hematuria and per rectal bleeding. Identification of causative infection for febrile thrombocytopenia and its treatment gives good outcome.

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