

A study of laboratory profile of fever with thrombocytopenia in adult patients at C.U. Shah Medical College, Surendranagar

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Abstract

Background and objectives: Infection is the commonest cause of thrombocytopenia. Thrombocytopenia associated with fever helps to narrow differential diagnosis and management of fever. It also helps to know the various complications of thrombocytopenia and its management. **Methods:** 500 patients aged >18 years with fever and thrombocytopenia between July 2013 – October 2013 were included for this study. **Results:** Infection was the commonest cause of thrombocytopenia and malaria was the commonest infections. Bleeding manifestations were seen. Petechiae/ purpura as the commonest bleeding manifestation followed by spontaneous bleeding. Conclusion: Infections, particularly malaria was the commonest cause of fever with thrombocytopenia. In majority of patients thrombocytopenia was transient and asymptomatic but in significant number of cases there was bleeding manifestations. Spontaneous bleeding was noted in platelet count of < 20,000 in majority of patients, petechiae/purpura was seen in platelet count in range of 50,000-1, 00, 000. On treating the specific cause drastic improvement in platelet count was noted during discharge and further follow-up.

Key Words: Fever, Malaria, Septicaemia, Thrombocytopenia

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Introduction

Fever is one of the most common clinical complain met with and thrombocytopenia associated with it is becoming commoner clinical condition. The prompt diagnosis and treatment of fever with thrombocytopenia will decrease cost, morbidity, mortality associated with it. This study is being

undertaken to correlate between fever and thrombocytopenia.

Infection is a commonest cause of thrombocytopenia, thrombocytopenia if associated with fever helps to narrow differential diagnosis and management of fever. It also helps to know the various complications of thrombocytopenia and its

management. Platelet count below 1,50,000 is considered as thrombocytopenia. Infections like Malaria, Dengue, Leptospirosis, Typhoid, HIV, Miliary TB & septicemia are some of the common causes of fever with thrombocytopenia. Therefore a well organized systemic approach that is carried out with an awareness of causes of fever with thrombocytopenia can shorten the duration of investigations and bring out diagnosis. Hence, a need for study to know the causes and complications of fever with thrombocytopenia.

Aims of the study

- To evaluate clinical and lab profile of fever with thrombocytopenia.
- To identify the cause of fever with thrombocytopenia.
- To assess the clinical complications associated with fever and thrombocytopenia.

Material and Methods

This study was done on patients who were admitted to C U Shah Medical College, Surendranagar, Gujarat, during the period of July 2013 – October 2013. We prospectively collected a series of 500 patients of fever with thrombocytopenia.

Inclusion criteria: The patients of both sexes aged > 18 years. Patients admitted

with fever, i.e. A.M temperature of > 37.2°C (>98.9°F) and P.M temperature of > 37.7 . C (>99.9°F), and thrombocytopenia i.e. platelet count of < 1.5 lakhs/ μ L.

Exclusion criteria: Patients <18 years are excluded. Patients with fever and no thrombocytopenia are not included. Patients with thrombocytopenia and no fever are not included. Diagnosed cases of Thrombocytopenic purpura on treatment are excluded. Patients with thrombocytopenia already diagnosed to have haematological disorder / malignancy, on treatment with chemotherapy and other immunosuppressants were excluded.

- Diagnosed cases of platelet disorders and dysfunction are excluded.
- Patients on treatment with antiplatelet drugs and other drugs causing thrombocytopenia are excluded.
- Patients with cirrhosis and chronic liver disease are excluded.
- Patients with other comorbidities which exacerbate mortality are not included

Study Procedure: Once the patients admitted with fever and those who had thrombocytopenia, a careful detailed history was recorded, general physical examination & systemic examination was done. Detailed examination of various systems was done.

Routine investigation was done, Specific and Special investigations (Blood & Urine culture; Widal; Antigen test for malaria; IgM ELISA Leptospira; IgM ELISA Dengue; Bone marrow aspiration/biopsy etc.) were done as and when indicated.

Details of history, general physical examination and laboratory and technical investigation reports were noted down from time to time. Once the specific diagnosis was reached, patients were treated for it specifically and symptomatically (Mechanical ventilations, haemodialysis etc.) For bleeding complications platelet transfusions was done if platelet count was $<20,000/\mu\text{l}$.

Observations and results: Out of a total of 500 patients who were recruited in the study, were 362 male and 174 were female. The age of the patients was >18 years. Regarding socioeconomic status, 57% the patients were from the middle income group, 30% were from the lower income group and 13% were from the higher income group. The most common clinical features in our study were fever (100%), followed by pallor (97%). Bleeding from various sites was encountered by 20% of the patients. Other common features were weakness (70%), splenomegaly (23%), hepatomegaly (17%)

and lymphadenopathy (03%) were also noted. Result shown in following tables

Table 1: Clinical Presentation of Patients of Fever with Thrombocytopenia

Sr.No.	Presenting Complaints	Percentage (%)
1	Fever	ALL
2	Weakness	40%
3.	Weight loss	10%
4.	Bleeding	10%

Table 2: Physical Finding in cases of Fever with Thrombocytopenia

Sr.No.	Physical Finding	Percentage
1	Pallor	70%
2	Hepatomegaly	35%
3.	Splenomegaly	45%
4.	Lymphadenopathy	10%

Table 3: Proportion of Various Disorders Presenting with Fever with Thrombocytopenia

Sr.No.	Diagnosis	No. of Patients	%
1	Malaria	234	46.8
2	Dengue	177	35.4
3.	Typhoid	23	4.6
4.	Septicemia	39	7.8
5.	HIV Positive	14	2.8
6.	Leukemia	07	1.4
7.	Lymphoma	06	1.2

Table 4 Proportion of Plasmodium Species Patient of Fever with Thrombocytopenia

Sr.No.	Species of Malaria	Malaria Spectrum
1	Plasmodium Vivax	224
2	Plasmodium Falciparum	49

Table 5: Gender Distribution of Fever with Thrombocytopenia

Sr.No.	Gender	No of Patient
1	Male	326
2	Female	174

Table 6: Platelet Count Patient of Fever with Thrombocytopenia

Sr.No.	Platelet Count/cumm	No of Patient
1	<50,000	66
2	50,000 – 1,00,000	315
3	>1,00,000	125

Discussion

For a study of fever with thrombocytopenia, patients must satisfy the following simplified criteria. Platelet count <1,50,000/cmm, The patients of both sexes aged >18 years., Patients admitted with fever and found to have thrombocytopenia are included in the study.

Prospective case collection is necessary and careful follow up is warranted. A study of fever with thrombocytopenia on >18years of age was carried out At C. U Shah Medical College. Here study duration was July 2013 to October 2013 and 500 cases of fever with thrombocytopenia (platelet count <1,50,000 lac) were studied.

In our study along with infections, hematological conditions were also documented, that was 9.4% and 2.6% respectively. Compare with Nair study¹ he was also documented infection and hematological condition 68% and 15% as a cause of fever with thrombocytopenia respectively. But in srinivas study² 100% cause were infections.

In our study 100% patients were diagnosed, correlated with srinivas study² in which diagnosis has been done in 100% cases. But in Nair study¹ 10.3% cases remained undiagnosed.

Among infection, malaria (54.6%) was the commonest cause of fever with thrombocytopenia that is to be correlated with srinivas study² (41%) but it is differ from Nair study¹ in which septicemia (29%) was the commonest cause this was due to seasonal and regional variations.

Dengue/viral haemorrhagic fever (35.4%) was the second commonest cause of fever with thrombocytopenia that is not to be correlated with srinivas study² (14%) and nair study¹ (13.8%). This was also due to seasonal and regional variations.

In our study thrombocytopenic signs was present in 10% of patients that is not to be correlated with srinivas study² and Nair study¹ in which thrombocytopenic signs was present in 49% and 47.3% of patients respectively.

In our study petechiae was the commonest bleeding manifestation that is present in 10% patients that is not to be correlated with srinivas² and Nair¹ study in which petechiae present in 63% and 22.22% respectively.

In our study 63% of patient having platelet count in the range of 50-100 thousands at the time of presentation. That is to be correlated with srinivas study² 62% and differ from nair study¹ 56.8%

In our study during the course of follow up platelet count showed increasing trends accounting for 70% of patients after starting treatment. But in srinivas setup² it was very difficult to follow up because of cost, affordability so only 30 % of patients were followed up and it showed increasing

trend in platelet count both at the time of discharge and in future follow up.

Infectious disease group formed the minor portion of patients presenting with fever with thrombocytopenia lacking any specific signs. Malaria, enteric fever, dengue, septicemia and other viral infections were included in this group.

Table 7: Comparison of Present Study With Nair and Srinivas Study in Patient of Fever with Thrombocytopenia

Disease Category	Nair Study ¹ No of Cases %	Srinivas Study ² No of Cases %	Present Study No of Cases %
Malaria	10 9.2	41 41	234 46.8
Dengue	15 13.8	14 14	177 35.4
Typhoid	16 14.7	24 24	23 4.6
Hematology Condition	17 15.6	00 00	13 2.6
Septicemia	29 26.6	19 19	39 7.8
Others	20 18.3	02 02	14 2.8

Conclusion:

- ✓ Infection is the most common cause of patient presenting with fever with thrombocytopenia.
- ✓ Among infection malaria was the commonest followed by dengue hemorrhagic fever.

- ✓ In bleeding manifestation petechiae was the commonest cause
- ✓ At presentation majority of patient having platelet count in range of 50,000 to 1, 00,000/cumm
- ✓ Response to empirical therapy for locally prevalent disease may help the physician for better management of the patients.
- ✓ In future various pathological and microbiological imaging modalities should be needed for research and diagnosis of much viral hemorrhagic fever.

References:

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