

## Evaluation of clinical profile of febrile thrombocytopenia

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### Abstract

**Background:** Fever is the most common presenting symptoms. An A.M temperature of >37.2°C (98.9°F) or a P.M temperature of >37.7°C (99.9°F) will be considered as fever. Thrombocytopenia is defined as platelet count <150,000/μl. This is due to decreased production of platelets, increased destruction and increased sequestration in the spleen. Study aimed to evaluate clinical profile, infective etiology for fever with thrombocytopenia and to study the presentation and complications of thrombocytopenia. **Method:** The prospective study was conducted in patients admitted in medical college hospitals affiliated to Vijayanagar Institute of Medical Sciences, Ballari, period of 2 years from November 2017 to October 2018. Patients presenting with fever with thrombocytopenia were taken up for study. Age and gender distribution, duration of fever, clinical features, platelet counts, bleeding manifestations, liver function tests and presence of various etiologies was studied. **Results:** A total of 120 patients were studied. The patient age ranged from 18 years to 70 years and the mean age was 35.38 years (SD=14.19) and the male (n=72) patients were more than female(n=48) patients. The diseases which contributed mainly to febrile thrombocytopenia in our study were Dengue (40%), Malaria (24%), Leptospirosis (8%) and septicemia (10%) and other causes (18%) acute viral fever. The duration of fever ranged from 1-15 days with mean duration of 6.05 days and 92% of them had duration of < 10 days. Headache was the most common symptom other than fever in the present study. Derangement of LFT was also observed in most of the cases. Spontaneous bleeding were seen 42 number of patients. In our study 112 patients recovered and 6 expired. **Conclusion:** Fever with thrombocytopenia consists of occult presentations of common diseases rather than rare disease. Febrile illness patients should be investigated for platelet count irrespective of bleeding manifestations. Infection is the commonest cause of fever with thrombocytopenia. Among infections, dengue and malaria were the commonest cause. Fever and thrombocytopenia as decreased platelet count could indicate the severity of disease without external manifestation and could be an indicator of bad prognosis and treatment of underlying condition will lead to rapid improvement in platelet count with complete clinical recovery.

**Keywords:** Dengue, thrombocytopenia, spontaneous bleeding, febrile illness

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### Introduction

Sir William Osler stated "Humanity has three great enemies: Fever, famine and War; of these, by far the greatest, by far the most terrible is fever"[1]. Fever has been recognized as a cardinal manifestation of disease since ancient times, as recorded by ancient scholars like Hippocrates[2]. Seen first as a disease but later recognized as an accompaniment to a variety of disease entities; fever is an easily noted and reliable marker of illness[3].

Normal body temperature displays a diurnal pattern with lower values in the early morning hours and higher values in the afternoon. Normal ranges are between 36.5°C and 37.5°C (97.7°F and 99.5°F). Fever is superimposed on this pattern and thus temperatures are usually greatest in the afternoon and evening. Fever is defined as an elevation of the body temperature above normal circadian range as a result of change in the thermoregulatory center located in the anterior hypothalamus. An AM temperature of >37.2°C (98.9°F) or a P.M. temperature of > 37.7°C (99.9°F) would define fever[4]. Thrombocytopenia is defined as platelet count <150,000/μl. This is due to decreased production of platelets, increased destruction and increased sequestration in the spleen. Infections is the commonest cause of thrombocytopenia[5,6].

In tropical country like India patients having acute febrile illness usually have an infectious cause and many of these are associated with thrombocytopenia. Infections like Malaria, Dengue,

Leptospirosis, Typhoid, Miliary tuberculosis, Septicemia are the common causes of fever with Thrombocytopenia[7].

Early diagnosis of this can prevent fatal outcome such as intracerebral bleed, hemorrhage into vital organs, shock and death[8,9,10]. Most of the time, the patients of fever with thrombocytopenia do not show clinical signs or bleeding manifestations. So in every case of fever, platelet count should be done as a routine investigation to find out the associated thrombocytopenia which will help to make the differential diagnosis. Thus a well-organized systemic approach needs to be carried out for fever with thrombocytopenia which can help to diagnose and treat the patients early. This will reduce the cost, morbidity and mortality associated with it[11].

### Materials and Methods

The prospective study was conducted in patients admitted in medical college hospitals affiliated to Vijayanagar Institute of Medical Sciences, Ballari, period of two years from November 2016 to October 2018.

### Inclusion Criteria

- Patient more than 18 years of age.
- Patients with fever (temperature >99.90F)
- Platelet count less than 1,50,000 cells/cu.mm.

### Exclusion Criteria

- All patients less than 18 yrs of age.
- All patients with thrombocytopenia without fever.
- Diagnosed cases of platelet disorders and dysfunction.
- Patients on treatment with antiplatelet drugs and other drugs causing thrombocytopenia.

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History was taken regarding duration of fever, occupation and history of travel. Symptoms other than fever, headache, nausea, vomiting, abdominal pain, diarrhea, cough, anorexia, myalgia, gum bleeding, hematemesis, oliguria, hematuria, loss of weight, etc., were noted. Signs like rashes, signs of dehydration, petechiae, jaundice, lymphadenopathy, hepatomegaly, splenomegaly, anemia, abdominal tenderness, altered sensorium, etc., were also noted. Investigations like complete hemogram, ESR, Liver function tests, routine urinary examination, urine for bile salts and bile pigments, Renal parameters like blood urea, serum creatinine, serum electrolytes, peripheral smear, X-ray chest, USG abdomen were done on admission. Other special investigations like peripheral smear for MP, dengue serology, widal study, IgM antibody for leptospirosis, sputum AFB, ELISA for HIV1 and 2, blood culture and urine culture, bone marrow aspiration. During the hospital stay, all the patients were subjected repeat CBC once in 2 days. The renal function tests were repeated every third day unless the patient developed ARF for whom the tests were done daily. Follow up of all patients regarding treatment and outcomes were done during the hospital stay.

#### Statistical analysis

Data was entered in the excel spread sheet. SPSS (Statistical Package for Social Sciences) version 20. [IBM SPSS statistics (IBM corp. Armonk, NY, USA released 2011)] was used to perform the statistical analysis. Descriptive statistics of the explanatory and outcome variables were calculated by mean, standard deviation for quantitative variables, frequency and proportions for qualitative variables. Chi square was applied to test the statistical association between qualitative variables. ANOVA test was applied to test the statistical significance for more than two groups for quantitative data.

#### Results

The present study includes 120 patients who were admitted for acute febrile illness with thrombocytopenia, males(n=72) were more common than females(n=48) in all age groups in the present study. The patient age ranged from 18 years to 70 years and the mean age was 37.38 years. The febrile illness with thrombocytopenia had maximum occurrence in the age group of third decade (32%) followed by second decade (23%) and was evenly distributed in the fourth and sixth decades having 19% and 16% patients respectively. The distribution of Platelet count in present study is described in Table-1

Platelet count/cumm	No. of patients	Percent (%)
10001-20000	14	11.6%
20001-40000	18	15%
40001-60000	27	22.5%
60001-80000	32	26.7%
80001-100000	29	24.2%
Total	120	100%

Common disease causing fever thrombocytopenia are Dengue (40%), Malaria (25%), Acute viral fever (15%), Leptospirosis (10%) and septicemia(10%). Acute febrile illness with thrombocytopenia due to above causes occurred maximum in second and third decades. Platelet distribution in various condition is described in table 2.

Platelet count	Dengue	Malaria	Viral fever	Leptospirosis	Septicemia
10000-20000	8	2	2	2	0
20000-40000	10	3	3	2	0
40000-60000	10	8	3	2	4
60000-80000	11	5	5	6	5
80000-100000	9	12	5	0	3
Total (120)	48	30	18	12	12

Site of bleeding	Dengue	Malaria	Viral fever	Leptospirosis	septicis
Petechiae	6	0	4	0	0
Gum bleeding	8	0	4	0	0
Conjunctival haemorrhage	6	2	2	3	1
Petechiae+gum bleeding	1	1	1	0	0
Petechiae+epistaxis	6	1	0	0	0
Malena	4	0	0	0	1

The duration of fever in the present study ranged from 1-15 day. In 92% of the cases the duration was < 10 days. Myalgia (48%) was the most common symptom other than fever, followed by headache in the present study. Other prominent symptoms in the descending order of frequency were headache (29%), vomiting (26%), joint pain (11%) pain abdomen (14%) and altered sensorium in (1%) cases. Hepatosplenomegaly contributed to major signs in the present study (24-28%). Petechiae and conjunctival hemorrhage, malena, gum bleed seen in 35% cases, followed by jaundice (22%) cases. In the present study platelet count varied from 10,000 to 1 lakh/cumm. The platelet count for the patients with bleeding episodes ranged from 8000 to 50000/cumm. Liver function test was deranged in 33.4% (n=40) ,

derangement was common in malaria(n=14), leptospirosis(n=11) dengue (n=9) septicemia (n=6)

#### Discussion

In the present study the mean age of febrile thrombocytopenia was 35.38 years (SD=14.19) and the male (n=72) patients were more than female(n=48) patients. The diseases which contributed mainly to febrile thrombocytopenia in our study were Dengue (40%), Malaria (24%), Leptospirosis (8%) and septicemia (10%) and other causes (18%) acute viral fever. In our study 112 patients recovered and 6 expired. Nair PS et al[12]. (2003) studied the profile of thrombocytopenia as associated with acute febrile illnesses and to determine the etiology of these febrile illnesses. They studied total of

109 patients, 76 males and 33 females with male as to female ratio of 2.3:1. Gandhi A et al (2015)[13,14], found that malaria(42%) was the most common cause followed by dengue (26%),undifferentiated fever (17%), enteric fever (4.46%) and septicemia (4.5%). Raikar s (2013)[15] found that dengue (52%) was the most common cause of thrombocytopenia then malaria (42%), enteric fever (3%). In our study hematological conditions are excluded, and in those cases all the available investigations are negative they are labelled as probable diagnosis of Undifferentiated b viral fever, which was labelled as unknown etiology in Nair et al.(2003)[12] study

### Conclusion

Fever with thrombocytopenia is of common presentations of common diseases. Infection is the commonest cause of fever with thrombocytopenia. Among infections, dengue was the commonest cause of febrile thrombocytopenia closely followed by malaria. Febrile illness patients should be investigated for platelet count irrespective of bleeding manifestations. Fever and thrombocytopenia as decreased platelet count could indicate the severity of disease without external manifestation and could be an indicator of bad prognosis and treatment of condition will lead to complete clinical recovery.

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