

## A Study of Fever with Thrombocytopenia and Its Complications

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### Abstract

**Background:** Fever with thrombocytopenia is one of the commonest medical problem encountered in India. Management of complications associated with it is the most challenging task for emergency physician which includes bleeding manifestations, ARDS, hepatitis, acute kidney injury, shock syndrome. **Aims and Objective:** This study was conducted to analyse the cause and outcome of fever associated with thrombocytopenia. **Materials and Methods:** 100 patients of fever associated with thrombocytopenia who were admitted in the department of emergency medicine, JJM Medical College, Davanagere were included in prospective clinical study. **Results:** 100 patients of fever with thrombocytopenia were analysed out of which male patients were 56 (56%) and female patients were 44 (44%). Among them those who were dengue positive were 64 (64%), Malaria cases were 12 (12%), typhus were 4 (4%), Negative fever profile were 20 (20%). Out of these 100 patients who developed ARDS were 25 (25%), Acute kidney injury were 8 (8%), hepatitis were 7 (7%), patients who developed rash/ petechiae and platelet count less than 20,000 were 60 (60%). **Discussion:** Infections particularly dengue was the commonest cause of fever with thrombocytopenia, with majority of patients developing bleeding manifestations and ARDS as a complication. The commonest bleeding manifestation were petechiae and purpura. In some patients diagnosed with malaria also developed complication like ARDS, while patients diagnosed with typhus fever had no complications like ARDS. In majority of patients thrombocytopenia was transient and by treating the specific cause improvement in platelet count was noticed during the course of illness.

**Keywords:** Fever; Thrombocytopenia; Bleeding Manifestation; Petechiae; Purpura.

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### Introduction

Fever with thrombocytopenia is one of the commonest medical problem encountered in India. Infections with protozoa, bacteria, viruses can cause thrombocytopenia with or without DIC.

Commonly dengue, malaria, scrub typhus and meningococci, leptospira and certain viral infections present as fever with thrombocytopenia. Viruses produce thrombocytopenia by various mechanisms

like impaired platelet production as a result of direct viral invasion, toxic effects of viral proteins on thrombopoiesis, viruses induced hemophagocytosis and increased platelet destruction caused by binding of virus induced auto antibodies or viral antigen antibody complexes.

Infections cause decrease in platelet count both due to effects on platelet production and platelet survival. Thrombocytopenia in bacterial infections occur as a part of sepsis with DIC. Dengue fever is a severe flu like illness or flu like sickness in which high grade

fever (104°F) is accompanied by severe headache, retro orbital pain, joint pains, vomiting and rashes on the body [1].

Severe dengue referred as dengue hemorrhagic fever is potentially lethal complication characterized by plasma leaking, fluid accumulation, severe bleeding organ impairment.

Management of complications associated with it, is the most challenging task for emergency physician which includes bleeding manifestation, ARDS, hepatitis, acute kidney injury, dengue shock syndrome and death.

**Materials and Methods**

Hundred patients of fever associated with thrombocytopenia who were admitted in the department of emergency medicine, JJMMC, Davangere from January to august 2016 were included in prospective clinical study.

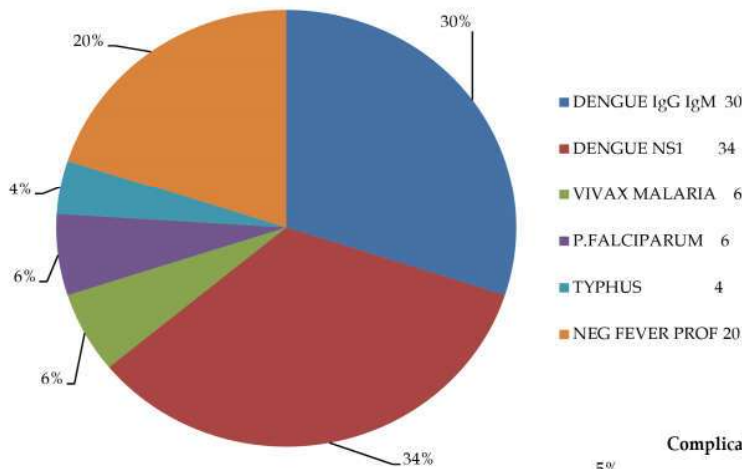
*Aims and Objectives*

This study was conducted to analyse the cause and outcome of fever associated with thrombocytopenia

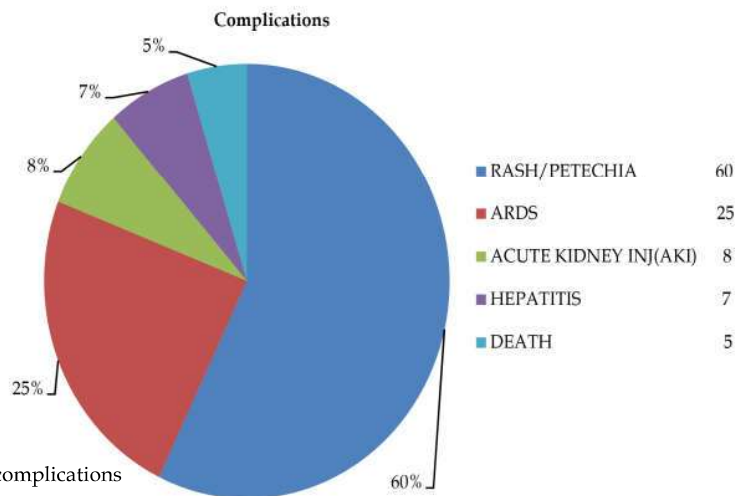
**Results**

Hundred patients of fever with thrombocytopenia were analysed out of which male patients were 56 (56%) and female patients were 44 (44%), Among them those who were dengue IgG and IgM positive are 30 (30%), dengue NS1 positive were 34 (34%), Malaria P.falciparum positive were 6 (6%) vivax were 6 (6%), Patients with typhus were 4 (4%), Negative fever profile were 20 (20%), Patient who improved with appropriate symptomatic treatment were 80 (80%) and 5 (5%) patients died due to multi organ dysfunction syndrome(MODS).

In our study of these 100 Patients who developed complications like ARDS were 25 (25%) Acute kidney injury were 8 (8%), hepatitis were 7 (7%), patients with rash/petechiae were 60 (60%) found to have bleeding manifestations with platelet count less than 20,000.



**Graph 1:** Graph shows etiological distribution of thrombocytopenia



**Graph 2:** Graph shows complications in dengue

## Discussion

Infections like dengue, malaria, typhus were found to be the causes of fever with thrombocytopenia, among them dengue being the most common cause of thrombocytopenia followed by malaria being the second most common cause.

Febrile illness with thrombocytopenia has a wide clinical spectrum which includes both severe and non severe clinical manifestations.

The common symptoms are fever, headache, generalized weakness, joint pain and petechial rash, respiratory symptoms like cough, G.I symptoms like vomiting, melena.

Once the case admitted with fever and those who had thrombocytopenia, a careful history was recorded, general physical examination and detailed examination of various system was done. Routine investigation, the specific and special investigation were done.

In a study done by Raikar S (2013) [2] found that dengue was (52%) the most common cause of thrombocytopenia then malaria (42%), enteric fever (3%). In our study dengue (64%) was the most common cause for thrombocytopenia, then Malaria were 12 (12%), Patients with typhus were 4 (4%), Negative fever profile were 20 (20%).

In a study done by Gandhi A et al (2015) [3] found that malaria (42%) was the most common cause for thrombocytopenia followed by dengue (26%), undifferentiated fever (17%), enteric fever (4.4%), septicemia (4.5%), while Nair study [4] had septicemia as a major cause of thrombocytopenia

In our study patients with rash/petechiae were 60 (60%) were found to have bleeding manifestations with platelet count less than 20,000

The study conducted by Lohitashwa et al. [5] observed bleeding manifestation in 49% cases and petechiae was the commonest bleeding manifestation. He observed that septicemia was the most common cause of death (78%) followed by dengue

In our study most common cause of death was due to Multi Organ Dysfunction Syndrome (MODS) (5%) patients

The common objective in treating dengue patients with severe thrombocytopenia is to stabilize the

patient's airway, breathing circulation and the platelet count which will avoid the major risk of bleeding.

In this study 64 patients of dengue infection requiring hospital admission due to bleeding manifestation and evidence of fluid leak and organ impairment, Thrombocytopenia was most common hematological finding in patients with dengue infection and was the commonest cause of fever with thrombocytopenia in our study.

In majority of patients thrombocytopenia was transient and by treating the specific cause improvement in platelet count was noticed during the course of illness.

## Conclusion

Febrile thrombocytopenia is an important clinical condition commonly caused by infections particularly dengue, malaria, typhus fever. The treatment of underlying condition will lead to rapid improvement in platelet count with complete clinical recovery. Mortality in febrile thrombocytopenia is not directly associated with degree of thrombocytopenia but with concomitant involvement of the other organs leading to multi organ dysfunction syndrome (MODS).

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