



CLINICAL PROFILE OF PATIENTS WITH FEBRILE THROMBOCYTOPENIA- A PROSPECTIVE STUDY

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ABSTRACT

Introduction: Fever is the most challenging problem in the field of medicine, consists of occult manifestation of common diseases rather than the actual diseases. Often patients with thrombocytopenia are asymptomatic and are diagnosed by routine complete blood count. Infection is the commonest cause of thrombocytopenia. Febrile patients with thrombocytopenia are commonly encountered by physicians especially during monsoon and perimonsoon period in tropical countries like India. . The study was intended to know the underlying etiology of febrile thrombocytopenia in our community, the various presentations and relationship between platelet level and severity of disease and prognosis. **Methods:** This study was carried out in 89 adult patients (age above 18 years) presenting with fever having thrombocytopenia (platelet count <1,50,000/mm³) in department of Medicine in tertiary care hospital of H.P. **Results:** Out of 89 cases of fever with thrombocytopenia, 51 were males and 38 were females. The most common cause was dengue in 51.7% of cases followed by scrub typhus in 26.9% of cases and other viral illnesses in 16.8% of cases. Based on severity mild to moderate and severe thrombocytopenia observed in 82% and 18% respectively. Bleeding manifestations were seen in 15 patients. All patients recovered well from treatment. **Conclusions:** Fever with thrombocytopenia consists of occult presentations of common diseases rather than rare disease. Infection is the commonest cause of fever with thrombocytopenia. Among infections, dengue is the commonest cause. Treatment of underlying condition will lead to rapid improvement in platelet count with complete clinical recovery.

KEYWORDS : Fever, Thrombocytopenia, Platelet Count, Dengue, Scrub typhus.

INTRODUCTION

Fever is the most challenging problem in the field of medicine, consists of occult manifestation of common diseases rather than the actual diseases. 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°C (98.9°F) or a P.M temperature of > 37.7°C (99.9°F) is considered as fever¹. Thrombocytopenia is defined as platelet count < 1,50,000/mm³. A normal platelet count ranges from 1,50,000 to 4,50,000 platelets/mm³ of blood. Often patients with thrombocytopenia are asymptomatic and are diagnosed by routine complete blood count.

Thrombocytopenia is due to decreased production of platelets, increased destruction and increased sequestration in the spleen. Infection is the commonest cause of thrombocytopenia^{3,4}. Febrile patients with thrombocytopenia are commonly encountered by physicians especially during monsoon and perimonsoon period in tropical countries like India. Infections with protozoa, bacteria and viruses can cause thrombocytopenia with or without disseminated intravascular coagulation. Commonly dengue, malaria, scrub typhus and other rickettsial infections, meningococci, leptospira and certain viral infections present as fever with thrombocytopenia.

Patients with thrombocytopenia may experience bleeding manifestations such as petechiae, epistaxis, gum bleeding, haematuria, gastrointestinal haemorrhage or intracranial bleeding^{5,6,7,8}. Only a few of these patients can go on to develop aggressive course with multi organ dysfunction requiring intensive care unit admission⁵. Early diagnosis of this can prevent fatal outcome such as intracerebral bleed, haemorrhage into vital organs, shock and death⁹. Most of the time, the patients of fever with thrombocytopenia do not show clinical signs or bleeding manifestations. So in all cases of fever, platelet count should be done to find out the associated thrombocytopenia which will help to make the differential diagnosis. Thus a well organized systemic approach is needed for fever with thrombocytopenia which can help to diagnose and treat the patients early. This will reduce the cost of the treatment, morbidity and mortality associated with it^{10,11}.

MATERIAL AND METHODS

We conducted this prospective cross-sectional observational study for one year at Dr. Yashwant Singh Parmar Government Medical College, Nahan, Himachal Pradesh, India after taking clearance from the Institutional Ethical committee. The patients admitted in Medicine ward were selected as per protocol based on inclusion and exclusion criteria.

1. The study aims to evaluate clinical and etiological profile of patients with febrile thrombocytopenia presenting in Dr. YSPGMC, Nahan, District Sirmour, H.P.

Inclusion Criteria

- Patients with fever and thrombocytopenia above 18 years of age.

Exclusion Criteria

- Patients with fever and no thrombocytopenia.
- Patients with thrombocytopenia and no fever.
- Diagnosed cases of platelet disorders and dysfunction.
- Patients on treatment with antiplatelet drugs and other drugs causing thrombocytopenia (aminosalicylic acid, linezolid, amiodarone carbamazepine, captopril, methyldopa).
- Patients with cirrhosis of liver, portal hypertension, connective tissue disorder like systemic lupus erythematosus.

Demographic characters like age, sex, height, weight of all subjects were noted. Detail history was recorded, general physical examination was done and detailed systemic examination was done. Investigations including complete blood counts, peripheral smear examination, kidney function tests, liver function tests, ultrasound of abdomen were done in all subjects.

The specific investigations were done as and when indicated. Both thick and thin blood smears were examined for malarial parasites. Special investigations like NS1 antigen for dengue, IgM Elisa for dengue, malarial antigen, Elisa for HIV, HbsAg, IgM Elisa for leptospira, blood culture and sensitivity, body fluid analysis and bone marrow aspiration were done as and when needed. Diagnosis of Viral fever was made whose definitive diagnosis was not made after specific investigations and responded to symptomatic treatment. Baseline platelet counts were done on the day of presentation. Repeat platelet counts were done in subjects with marked thrombocytopenia until normal or near-normal values were reached

Ethical Consideration

Prior to conduct of the present study, the protocol of the study was submitted to ethical committee of hospital. After getting due approval from the committee, the present study was initiated. Also prior to conduct of study a voluntary written informed consent was taken from the patient/legally acceptable representative.

Statistical Technique

Microsoft Excel® and SPSS® 20 for Windows® were used for data storage and analysis.

RESULTS

Aims and Objectives

Analysis of clinical symptoms, laboratory profile and complications of 89 patients presented with febrile thrombocytopenia at Dr Yashwant Singh Parmar Govt. Medical College, Nahan, H.P. who met the inclusion criteria was done. In our study, a total of 89 cases were studied. Out of the 89 cases 51 (57.3%) were males and 38 (42.7%) were females. (Figure 1)

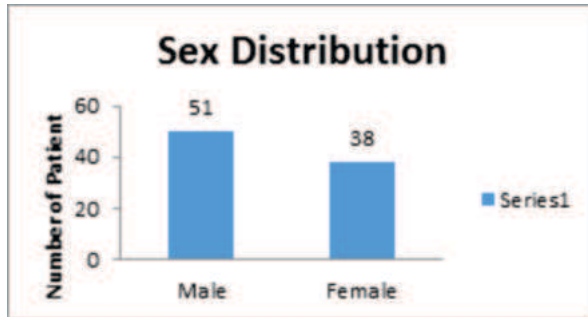


Figure 1

The maximum number of 48 cases were recorded in the age group of 18-30 years (53.9%), followed by 16 cases in 31-40 years (17.9%). In age group of 51-60 years 11 cases were found (12.4%). In both age group of 41-50 years and 61-70 years 8 cases (8.9%) were found (Figure 2)

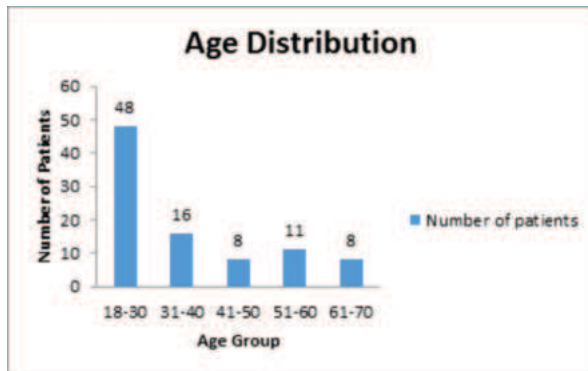


Figure 2

Etiology of Thrombocytopenia

The most common cause was dengue found in 46 (51.7%) of cases followed by scrub typhus in 24 (26.9%) of cases and 15 cases (16.8%) were having other viral febrile illnesses. Malaria was diagnosed in 3 cases (3.3%) and 1.1% had septicemia (Figure 3)

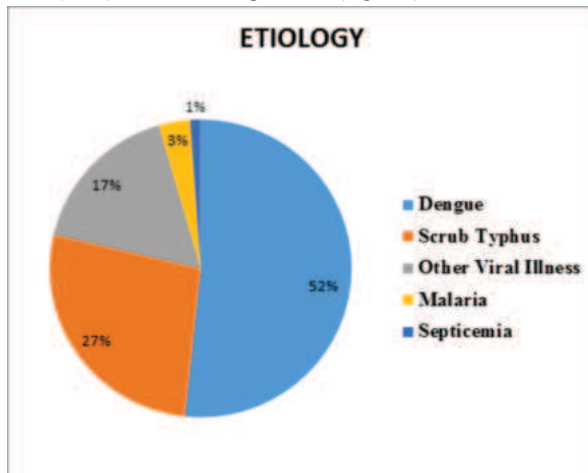


Figure 3

Among 89 cases in the study, all of them presented with fever, 76 complained of bodyaches, 67 complained of headache, 38 of vomiting, 21 of abdominal pain, 13 had shortness of breath and pallor, 10 had bleeding manifestations, 7 had rash. Icterus was seen in 5 patients, 3 had cough, and 1 patient had shown eschar typical of Scrub typhus (Table 1)

Table 1: Distribution Of Clinical Features Among Cases Of Febrile Thrombocytopenia

Clinical Features	Number of Patients
Fever	89
Bodyaches	76
Headaches	67
Nausea/Vomiting	38
Abdominal Pain	21
Bleeding Manifestations	15
Pallor	13
Shortness of Breath	13
Rash	7
Icterus	5
Cough	3
Eschar	1

Bleeding manifestations were seen in 16.8% of cases. The most common bleeding manifestation was petechiae found in 7 cases (46.7%). Gum bleeding was found in 3 cases (20%). Epistaxis and hematuria was seen in 2 cases each (13.3%). Only one case was having GI bleeding in the form of melena ((Table 2)

Table 2: Distribution Of Bleeding Manifestations Among Cases Of Febrile Thrombocytopenia

Bleeding Manifestations	Number of cases (%)
Petechiae	7 (46.7%)
Gum bleeding	3 (20%)
Epistaxis	2 (13.3%)
Hematuria	2 (13.3%)
GI bleeding- Melena	1 (6.7%)

In our study, mild thrombocytopenia is seen in 17 cases (19.1%) and moderate thrombocytopenia in 56 cases (62.9%). So out of 89 cases, 73 cases were having only mild to moderate thrombocytopenia. Severe thrombocytopenia was seen in 16 (17.9%) cases. Only one case was found to have platelet count $<10,000/\text{mm}^3$ ((Table 3)

Table 3: Distribution Of Platelet Count Among Cases Of Febrile Thrombocytopenia

Platelet Count (mm^3)	Number of cases	Percentage
$<5,000$	NIL	0
5,000-10,000	1	1.12
10,000-50,000	15	16.85
50,000-1,00,000	56	62.9
1,00,000-1,50,000	17	19.1

In our study, only 12 (13.5%) patients of dengue were having severe thrombocytopenia and only 1 patient of dengue was found to have platelet count $<10,000/\text{mm}^3$. Similarly only 2 (2.2%) patients of scrub typhus were having severe thrombocytopenia as shown in Table 4.

Table 4: Distribution Of Platelet Count Among Cases Of Febrile Thrombocytopenia In Various Etiologies

	5,000-10,000	10,000-50,000	50,000-1,00,000	1,00,000-1,50,000
Dengue	1	11	33	1
Scrub Typhus		2	22	
Other Viral illness		1		14
Malaria			1	2
Septicemia		1		

All the patients enrolled in the study were followed for their recovery until discharge. In our study all the patients were recovered with the treatment according to their etiology. No mortality was recorded.

DISCUSSION

A total number of 89 patients admitted over a period of one year were studied. In the present study, subjects were in the age group of 18-70 years. The most common age group involved was from 18 to 30 years of age (53.9%) followed by 31 to 40 years (17.9%). This was similar to studies by Majumdar R et al¹² and Magdum N et al¹⁵. In the present study out of 89 cases of fever with thrombocytopenia, 57.3% were males and 42.7% were females depicting a male preponderance. This correlated with study conducted by Dash H S et al.¹³

In this study, the most common etiology responsible for newly diagnosed thrombocytopenia in adult patients was found to be dengue fever (51.7%) followed by Scrub Typhus (26.9%) and other viral

illnesses (16.8%). Majority of cases in our study were admitted in rainy and early winter season. Dengue and scrub Typhus cases had a surge in rainy season. This correlated with studies done by Katiyar V et al¹⁴, Magdum N et al¹⁵ and Raikar S R et al¹⁶. Scrub typhus accounted for 24 (26.9%) cases of febrile thrombocytopenia in our study, second commonest etiology after dengue. This is in contrast to many studies as scrub typhus is endemic in our state and most cases of scrub typhus are seen in monsoon period from July to October. Eschar, a characteristic blackish necrotic skin lesion of scrub typhus was seen only in 1 patient (4.2%). Previous Indian studies have also reported similar frequencies of occurrence of eschar (1.8-24%). Lakshmi RMMV et al¹⁸, Pathania M et al¹⁹ reported eschar in 13.7% and 1.8%. The lower detection rate of eschar in Indian studies study might be due to darker skin colour of patients.

Fever associated with chills and rigors, bodyaches and headache were the most common symptoms of patients whereas bleeding manifestations were present in 15 patients (16.8%). This presentation was comparable to studies carried out by Katiyar V et al¹⁴ and Magdum N et al¹⁵.

Petechiae were the most common bleeding manifestation seen in this study and found in 7 patients (46.7%) followed by bleeding from the gums (20%). This is correlated with studies by Dash H S et al¹³, Katiyar V et al¹⁴ and Magdum N et al¹⁵.

In the present study, there were 18% patients with severe thrombocytopenia and 82% patients with mild to moderate thrombocytopenia. This is in comparison to study done by Naikwadi M A et al¹⁷ in which severe thrombocytopenia was seen in 18% and mild to moderate thrombocytopenia in 82% of cases.

CONCLUSION

Infection is the commonest cause of febrile thrombocytopenia. Maximum prevalence of febrile thrombocytopenia cases due to infectious etiology are in young, in male and in rainy and early winter season. Dengue is the commonest cause of febrile thrombocytopenia followed by scrub typhus and other viral illnesses in our region. Treatment of underlying condition will lead to rapid improvement in platelet count with complete clinical recovery. Such studies will help in finding changing trends of locally prevalent infectious diseases and finding some new emerging diseases not prevalent in the particular region.

REFERENCES

- Woodward TE. The Fever Pattern as a Diagnostic Aid: In Fever: basic mechanisms and management. (ed. Mackowiack PA), New York, Lippincott-Raven Publishers, Philadelphia, 1997: pp215-35.
- The Hemorrhagic disorders: capillary and platelet defects. In : Firkin F, Chesterman C, Penington D, Rush B, et al.(Eds.) De Gruy's clinical hematology in medical practice, 5th edition. Blackwell science; 1996 .p. 360-405.
- Handian RI. Bleeding and thrombosis. Chapter 62, In: Harrison principles of internal medicine, 15th Ed. Vol.1, Edt. Braunwald et al, USA: McGraw Hill, 2001. pp358.
- Ambruso DR, Hays T and Goldenberg N. Hematologic disorders in current Pediatric diagnosis and treatment 18th edition a Lange medical books/Mc Graw-Hill. 2007:860-62
- Abrahamsen SK, Haugen CN, Rupali P, Mathai D, Langeland N, Eide GE, et al. Fever in the tropics: aetiology and case-fatality-a prospective observational study in a tertiary care hospital in South India. BMC Infect Dis. 2013;13:355.
- Singhi S, Chaudhary D, Varghese GM, Bhalla A, Karthi N, Kalantri S, et al. Tropical fevers: Management guidelines. Indian journal of critical care medicine: peer-reviewed, official publication. Ind Soci Crit Care Med. 2014;18(2):62
- Lakshmi Prasanna Gutthi, Sunita Vegesna, Varanasi Pundarikaksha, Swetha Kolla, Manasa Gundapaneni, Prudhvi Krishna Karimi. A Study of Clinical and Lab Profile of Fever with Thrombocytopenia. International Journal of Contemporary Medical Research 2017; 4: 77-83
- Shirley Parker Levine. Miscellaneous causes of thrombocytopenia. Chapter- 64, In: Wintrobe's clinical hematology, 10th Ed. Vol.2, Edt. Richard Lee G. et al, Baltimore: Williams and Wilkins, 1999 pp1627-29. 10.
- George JN, Aizvi MA. Thrombocytopenia. In: Williams haematology, 6th Ed, Edt. Ernest Beutler et al, USA: McGraw Hill, 2001 pp1501 11.
- Nair PS, Jain A, Khanduri U, Kumar V. A study of fever associated with Thrombocytopenia. JAPI, 51: 1173. 12.
- Ziedins KB, Orfeo T, Jenny NS, Everse SJ, Mann KG. Blood Coagulation and Fibrinolysis. In: Greer JP, Foerster J, Lukens JN, Rodgers GM, Paraskevas F (eds.) Wintrobe's clinical hematology. 11th ed. London:Lippincott Williams & Wilkins Publishers. 2003:1332-1546.
- Majumdar R, Jana CK, Ghosh S, Biswas U. Clinical spectrum of dengue fever in a tertiary care centre with particular reference to atypical presentation in the 2012 outbreak in Kolkata. J Indian Med Assoc. 2012 Dec;110(12):904-6.
- Dash HS, Ravikiran P, Swarnalatha G. Study Of clinical and laboratory profile of fever with Thrombocytopenia and its Outcome During hospital stay. IJSR. 2013;2:445-447.
- Katiyar V, Khare R. Systemic evaluation of febrile thrombocytopenias. Int J Adv Med. 2018 Feb;5(1):91-95
- Magdum N, Warad V, Devarmani SS, Kattimani R. A Study of Clinical Profile of Patients with Febrile Thrombocytopenia. Ann. Int. Med. Den. Res. 2019; 5(2):ME06-ME13.
- Raikar SR, Kamdar PK, Dabhi AS. Clinical and Laboratory Evaluation of Patients with Fever with Thrombocytopenia. IJCP. 2014; 24:360-363
- Naikwadi M A , Anjum N S. Study of Clinical and Laboratory Profile of Fever with

Thrombocytopenia in Tertiary Hospital. IJCMR. 2019;6(7):98.46.

- Lakshmi RMMV, Dharma TV, Sundharan S, Surya SMV Emmadi R, Yadati SR, et al. Prevalence of scrub typhus in a tertiary care centre in Telangana, south India. Iran J Microbiol 2020;12:204-8. 8.
- Pathania M, Amisha, Malik P, Rathaur VK. Scrub typhus: Overview of demographic variables, clinical profile, and diagnostic issues in the sub-Himalayan region of India and its comparison to other Indian and Asian studies. J Family Med Prim Care 2019;8:1189-95.