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Research Article

Clinical Profile among Febrile Patients Admitted With Thrombocytopenia in a Tertiary Care Hospital in Northern India

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ABSTRACT

Introduction: Febrile thrombocytopenia is a common and challenging clinical presentation encountered particularly in tropical regions, often requiring prompt evaluation and management. In the last decade, parts of Asia have been witnessing an epidemic of severe fever with thrombocytopenia, and it has a high case-fatality rate. Therefore, a well-organized systemic approach, carried out with an awareness of causes of fever with thrombocytopenia can shorten the duration of investigations and bring out the diagnosis. **Aim and Objectives:** To evaluate the clinical profile among febrile patients presenting with thrombocytopenia and study the associated etiological factors and outcome in our setup. **Material and Methods:** A cross-sectional observational study conducted in the Department of General Medicine, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly on patients presenting with fever and diagnosed with thrombocytopenia during the period from July 2023 to December 2023. The clinical and laboratory parameters were studied and their outcomes were observed. **Observations:** 152 patients with febrile thrombocytopenia with mean age 58.57 $\pm$ 3.77 years and were analysed dengue (43.42%) was found to be the major culprit and platelet count below 10,000 /µL, was observed among 88.89% cases from dengue. The most common bleeding manifestation observed was melena, accounting for 41.76% cases. **Conclusion:** Increased awareness and early recognition of thrombocytopenia can avoid catastrophes like fatal bleed and thus reduce morbidity and mortality.

Keywords: Acute Febrile Illness, Thrombocytopenia, Bleeding manifestations.

INTRODUCTION

Febrile thrombocytopenia is a common and challenging clinical presentation encountered particularly in tropical regions, often requiring prompt evaluation and management. However, determining the specific etiology based on clinical presentation alone can be challenging as numerous infectious and non-infectious aetiologies including dengue fever, malaria, enteric fever, leptospirosis, and viral hemorrhagic fevers have been associated with fever with thrombocytopenia.[1] Thus, identifying the underlying cause and the associated parameters is crucial for appropriate treatment and improved patient outcomes.

Fever, also known as pyrexia from Greek "pyretus" meaning fire, is the most ancient hallmark of disease. Unlike the fever of unknown origin which enjoys the standard definition, acute febrile illness or acute undifferentiated febrile illness, lacks international consensus definition. Since pyrexia of unknown origin require duration of fever greater than three weeks, some authors define acute febrile illness as fever that resolves within three weeks. More traditionally, acute febrile illness has been defined as fever of two weeks or shorter durations that lacks localized or organ specific clinical findings.[4]

Physicians use fever as a reliable guide to the presence of disease and the response of disease to therapy. It is in the diagnosis of febrile illness that the science and art of medicine come together. It is well known fact in medicine that one can diagnose a disease only when one is aware of the disease and looks for it. Thrombocytopenia was often missed, because it was not often looked for and the required investigation was not asked for. Now with increasing awareness of the association of

thrombocytopenia with various illnesses especially with febrile illness, this entity is now viewed with due regards.

Thrombocytopenia (defined as platelet count <150,000/µl) can be attributed to reduced platelet production, increased platelet consumption, abnormal platelet distribution, and dilutional loss.[2] Thrombocytopenia with fever often signifies serious underlying aetiologies, which require specific management as it correlates inversely with mortality and morbidity in various febrile illnesses, and serial monitoring of platelet counts has prognostic value. This highlights the importance of thrombocytopenia in various febrile disorders.

In the last decade, parts of Asia have been witnessing an epidemic of severe fever with thrombocytopenia, and it has a high case-fatality rate.[3]

Therefore, a well-organized systemic approach, carried out with an awareness of causes of fever with thrombocytopenia can shorten the duration of investigations and bring out the diagnosis. So, this study is an attempt to evaluate clinical profile of fever with thrombocytopenia in our scenario.

Aim and Objectives

To evaluate the clinical profile among febrile patients presenting with thrombocytopenia and study the associated etiological factors and outcome in our setup.

Materials and Methods

This was a cross-sectional observational study conducted in the Department of General Medicine, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly on patients presenting with fever (less than 14 days duration, body temperature ≥ 38°C) and diagnosed with thrombocytopenia (platelet count < 150,000/µL) during the period from July 2023 to December 2023. After obtaining approval from Institutional Ethical Committee and informed written consent, the clinical and demographic data were collected using a standardized case report form. Laboratory investigations, including complete blood count, and other relevant tests based on clinical indications like blood cultures to investigate bacterial infections, serological tests, were performed.

Patients who refused to give consent and those with pre-existing diagnoses of chronic infectious diseases, liver cirrhosis, and autoimmune diseases were excluded.

The data collected was analyzed using SPSS version 20.0.

Observations

The mean age among the study population was 58.57 ± 3.77 years with minimum of 19 years and maximum of 79 years. 152 patients were studied over a period of 6 months among which male preponderance was seen in 62.16% cases.

Majority of the patients belonged to lower socio-economic status (82.32%) against upper class (0.94%) and the mean BMI among the study subjects was observed to be 22.96 ± 3.19 kg/m^2.

On identifying the etiological factors of fever, dengue was tabulated to be the major culprit contributing 43.42% cases against minimum cases from leptospirosis (5.92%).

Table 1: Etiology of Febrile Thrombocytopenia

Etiology	No. of Subjects (n=152)	Percentage (%)
Dengue	66	43.42
Malaria	18	11.84
Unexplained	28	18.42
Septicemia	21	13.82
Enteric fever	10	6.58
Leptospirosis	9	5.92

When analysed for thrombocytopenia, it was observed that majority patients had platelet

count between 51,000 – 1,50,000/ µL and only 5.92% of the total study population had platelet count below 10,000/ µL.

Table 2: Platelet Count among the Study Population

Platelet count (cells/µL)	No. of Subjects (n=152)	Percentage (%)
< 10,000	9	5.92
10,000 – 20,000	17	11.18
21,000 – 50,000	52	34.21
51,000 – 1,50,000	74	48.68

Among the patients with platelet count below 10,000 /µL, 88.89% cases from dengue and 11.11% from septicemia were reported. 64.71%, 44.23% and 32.43% cases from dengue had platetet count 10,000-20,000, 21000-50,000 and 51000-150000 /µL respectively

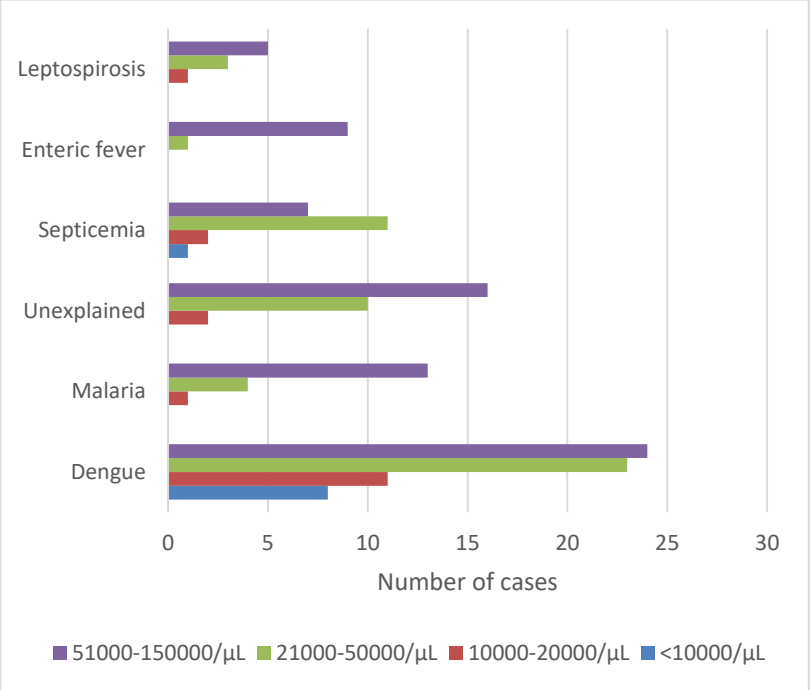

Figure 1: Correlation of Platelet Count with Etiological Agent

Bleeding tendencies were seen in 17 subjects wherein no cases of enteric fever had any sort of bleeding manifestation. 13.64%, 7.14%, 14.29% cases were reported to have dengue, unexplained fever and septicemia respectively. 11.11% cases had malaria and leptospirosis each.

The most common bleeding manifestation observed was melena, accounting for 41.76% cases followed by petechial haemorrhages (35.29%), hematuria (11.78%) and 5.88% had bleeding per rectum and bleeding gums each.

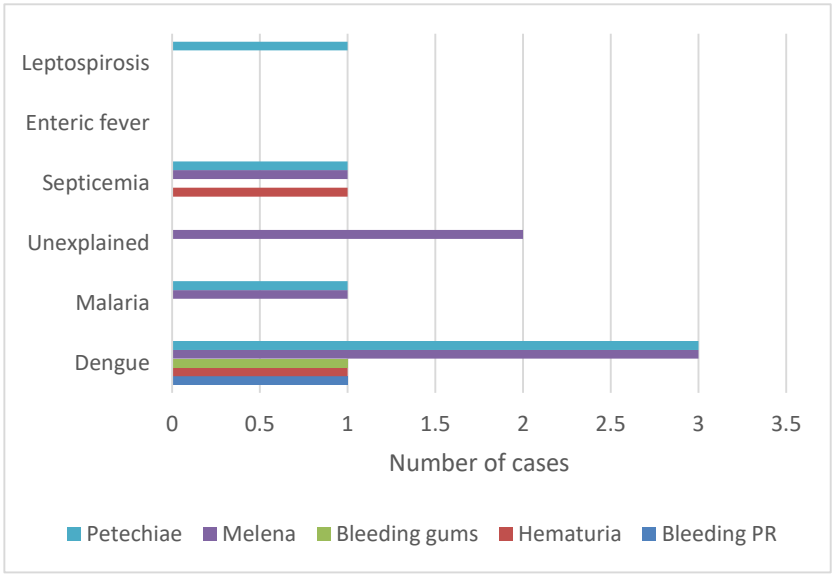

Figure 2: Correlation of Bleeding manifestations with Etiological Agent

No mortality was reported with enteric fever and leptospirosis and unexplained fever. 4.55% cases from dengue and 5.56%, 9.52% from malaria and septicemia could not be revived.

DISCUSSION

Acute febrile illness is common cause of people seeking health care facilities in India and poses major diagnostic and therapeutic challenge to health care workers, particularly those working in limited resource setting. Various studies have been conducted to study the clinical and etiological profile for the same specially in tropical and sub-tropical areas and their results have been compared to that of ours.

In the study by Magdum et al., subjects were in the age group of 18-80 years, youngest being 18 years old and the eldest 80 years with mean of 34.7 years which was similar to the results of our study.[5] Mudunuri et al. reported that febrile illness with thrombocytopenia had maximum occurrence in the age group of third decade (32%).[6]

Dhunputh et al. in his study reported the ratio of acute febrile illness with thrombocytopenia among males to females was of 2.1:1. However, unlike the findings reported in our study, majority of the patients (60%) had platelet counts in the range of 50,000 to 1,00,000/mm^3.[7]

Similar to the findings of our study, Modi et al. found the most common etiology responsible for newly diagnosed febrile thrombocytopenia was found to be viremia (61.32%) including dengue fever (55.98%) and other viral infection (5.34%).[8]

Dipak et al. enrolled 113 patients of acute febrile illness with thrombocytopenia and observed an increased trend of bleeding manifestations with decreased platelet count. In his study, 15.04% cases have count between 100,000-150,000/µl, 50.44% cases between 50,000-100,000/µl, 27.43% cases between 25,000-50,000/µl, and 7.07% cases below 25,000/µl platelet count and bleeding manifestations were seen in total 35 cases, of which petechiae in 15 (42.85%) cases were most common, ecchymosis in 7 (20%) cases, subconjunctival bleeding 4 (11.42%), bleeding gums 3 (8.57%) cases, melena 6 (17.14%) cases which was in contrast to our study wherein melena was the most common bleeding manifestation.[4]

Similarly, Saini et al. reported the clinical manifestations of thrombocytopenia in 512 patients among whom bleeding tendencies were more commonly observed in patients with platelet count < 20,000. Out of 512 patients, 91.4% patients had petechiae/purpura, spontaneous bleeding was seen in 292 (57%) patients among which, 152 (52%) cases had Sub-conjunctival hemorrhages, 116 (39.8%) cases had melena, 91 (31.16%) cases had bleeding gums, 67 (23%) cases had epistaxis, 55 (18.8%) cases had hematemesis, 24 (8.2%) cases had menorrhagia, 18 (6%) cases had hematuria and 6 (2%) case had bleeding per

rectum.[9]

Unlike the findings of our study, malaria was observed most common cause of mortality with 5 (45.45%) of total deaths followed by septicemia 3 (27.27%), leptospirosis 2 (18.18%), dengue fever 1 (9.09%) cases in study by Dipak et al.[9] However, Prithwiraj et al. and Sriniwas et al reported septicemia is most common cause of mortality, contributing 60% and 78% of total deaths similar to our study.[10,11]

All these studies are highlighting the trends according to their own institutional practices regarding handling of thrombocytopenia in acute febrile illness.

CONCLUSION

Febrile thrombocytopenia is one of the unrecognized and fatal complication, thus necessitating if platelet count is not done routinely. Increased awareness and early recognition of thrombocytopenia can avoid catastrophes like fatal bleed and thus reduce morbidity and mortality.

Limitations

Our study being a small study, large randomized control trials are needed to establish the prevalence of thrombocytopenia in patients presenting with fever. As this was a single center study with a comparatively short sample size, results of this study cannot be generalized.

Conflict of Interest: None

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REFERENCES

1. Dev A, Kumar A, Kumar S, et al. (September 05, 2023) Clinical and Etiological Profile of Acute Undifferentiated Fever With Thrombocytopenia in an Emergency Department. Cureus 15(9): e44719. DOI 10.7759/cureus.44719.
2. Cooper N, Radia D. Thrombocytopenia. Medicine (Baltimore). 2017;45(4):221-4.
3. Li DX. Severe fever with thrombocytopenia syndrome: A newly discovered emerging infectious disease. Clin Microbiol Infect. 2015;21(7):614-20.
4. Dipak D Gaikwad, Ayaskanta Kar. Clinical and etiological profile of acute febrile illness with thrombocytopenia. MedPulse International Journal of Medicine. October 2021; 21(1): 19-22.
5. 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.
6. Mudunuri Sitarama Lakshmi, Gandi Srinivasa Rao. Evaluation of clinical profile of fever with thrombocytopenia in patients attending GIMSR, Visakhapatnam. International Journal of Contemporary Medicine Surgery and Radiology. 2020;5(1): A102-A106.
7. Dhunputh P, Acharya R, Umakanth S, Shetty SM, Mohammed AP, Saraswat PP . Clinical profile of Thrombocytopenia in Acute Febrile Illnesses, a hospital-based study. Kathmandu Univ Med J. 2021;74(2):248-52.
8. Modi TN, Mehta AD, Sriram AS. Clinical Profile of Febrile Thrombocytopenia: A Hospital-Based Cross-Sectional Study. Journal of Research in Medical and Dental Science | Vol. 4 | Issue 2 | April – June 2016. Page no 115-120.
9. Saini KC, Agrawal RP, Kumar S, Tantia P, Thakkar K, Sharma AK. Clinical and Etiological Profile of Fever with Thrombocytopenia – A Tertiary Care Hospital Based Study. Journal of The Association of Physicians of India. Vol. 66. April 2018. Page no 33-36.
10. Prithviraj patil , Pranita solanke, Gaytre harshe, International Journal of Scientific and Research Publications, Volume 4, Issue 10, October 2014 1 ISSN 2250-3153
11. Lohitashwa SB, Vishwanath BM, Srinivas G A Study of Clinical and Lab Profile of Fever with Thrombocytopenia JAPI volume 57 March 2009.