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Original Research

A study of clinical and laboratory Profile of patients having Fever with Thrombocytopenia in a Tertiary Care Hospital

Dr. Shamim Ahmad Khan[1], Dr. Abdul Mateen Ansari[2]

[1]Associate Professor, Department of Medicine, Career Institute of Medical Sciences & Hospital, IIM Road Lucknow, Uttar Pradesh, India;
[2]Professor, Department of Medicine, Career Institute of Medical Sciences & Hospital, IIM Road Lucknow, Uttar Pradesh, India

***ABSTRACT*:**
Background: Patients with acute febrile illnesses in a tropical country like India usually have an infectious aetiology and may have associated thrombocytopenia. Infections like malaria, dengue and typhoid are some of the common causes of fever with thrombocytopenia. **Aim of the study:** To clinical and laboratory profile of fever with thrombocytopenia in tertiary hospital. **Materials and methods:** The present study was conducted in the Department of General Medicine of the medical institution. For the study, a total of 50 patients admitted to the inpatient department with fever and thrombocytopenia were evaluated. 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, hemetemesis, 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. Follow up of all patients regarding treatment and outcomes were done during the hospital stay. **Results:** In the present study, 50 patients with fever and thrombocytopenia were evaluated. Number of male patients was 27 and female patients was 23. The mean age of patients was 38.75 years. It was observed that 17 patients had dengue which was the highest count. Malaria had second highest, which was 15. Septicemia, typhoid, viral hepatitis and alcoholic liver disease was diagnosed in 9, 5, 3 and 1 patient, respectively. All the mild thrombocytopenia patients recovered fully. There was one death in patients having moderate thrombocytopenia. A total of 3 deaths were seen in severe thrombocytopenia patients. **Conclusion**: Within the limitations of the present study, it can be concluded that dengue and malaria are the most common causes for fever with thrombocytopenia in our study population. The recovery rate of patients with mild and moderate thrombocytopenia is fairly positive.
Keywords: fever, dengue, thrombocytopenia.

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Corresponding author: Dr. Abdul Mateen Ansari, Professor, Department of Medicine, Career Institute of Medical Sciences & Hospital, IIM Road Lucknow, Uttar Pradesh, India

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INTRODUCTION:

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 ℃ (>98.9°F) or a P.M. temperature of >37.7 ℃(>99.9°F) would define fever. [1] Thrombocytopenia is defined as a reduction in the peripheral blood platelet count below the lower normal limit of 150000 /mm^3. Despite the number and diversity of disorders that may be associated etiologically, thrombocytopenia results from only four processes: Artifactual thrombocytopenia, deficient platelet production, accelerated platelet destruction and abnormal distribution or pooling of the platelets within the body.[2,3] The causes for thrombocytopenia are varied and range from idiopathic, infectious to malignancies. Patients with acute febrile illnesses in a tropical country like India usually have an infectious aetiology and may

have associated thrombocytopenia. Infections like malaria, dengue and typhoid are some of the common causes of fever with thrombocytopenia. Patients having thrombocytopenia with fever many times do not have bleeding manifestations. Hence study of correlation between platelet counts and hemorrhagic manifestations will help us to know the correct time for infusion of platelets, thus avoiding unnecessary platelet transfusion. Pseudo thrombocytopenia is false low platelet count and is suspected when there is no bleeding despite very low platelet count. [4-6] Hence, the present study was conducted to clinical and laboratory profile of fever with thrombocytopenia in tertiary hospital.

MATERIALS AND METHODS:

The present study was conducted in the Department of General Medicine. The ethical clearance for the study was approved from the ethical committee of the hospital. For the study, a total of 50 patients admitted to the inpatient department with fever and thrombocytopenia were evaluated. We included patients with more than 20 years of age having fever (temperature >99.90F) and platelet count less than 1,50,000 cells/cu.mm. Patients less than 12 yrs of age, having thrombocytopenia without fever, diagnosed cases of platelet disorders and dysfunction and patients on treatment with antiplatelet drugs and other drugs causing thrombocytopenia were excluded from the study. 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, hemetemesis, 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.

The statistical analysis of the data was done using SPSS version 11.0 for windows. Chi-square and Student's t-test were used for checking the significance of the data. A p-value of 0.05 and lesser was defined to be statistically significant.

RESULTS:

In the present study, 50 patients with fever and thrombocytopenia were evaluated. Number of male patients was 27 and female patients was 23. The mean age of patients was 38.75 years. [Table 1] Table 2 shows the number of patients with different etiologies of the patients. It was observed that 17 patients had dengue which was the highest count. Malaria had second highest, which was 15. Septicemia, typhoid, viral hepatitis and alcoholic liver disease was diagnosed in 9, 5, 3 and 1 patient, respectively. Table 3 shows the severity of thrombocytopenia in the patients. We observed that severe thrombocytopenia was seen in 11 patients, moderate thrombocytopenia was seen in 20 patients and mild thrombocytopenia was seen in 19 patients. All the mild thrombocytopenia patients recovered fully. There was one death in patients having moderate thrombocytopenia. A total of 3 deaths were seen in severe thrombocytopenia patients.

Table 1: Demographic data of the participating patients

Variables	Numbers
Total no. of patients	50
No. of male patients	27
No. of female patients	23
Mean age (years)	38.75

Table 2: Number of patients with different etiologies of the patients

Etiology	Number of patients
Malaria	15
Dengue	17
Septicemia	9
Typhoid	5
Viral hepatitis	3
Alcoholic liver disease	1

Table 3: Severity of thrombocytopenia

Severity	Recovered	Death	Total
Severe	8	3	11
Moderate	19	1	20
Mild	19	0	19

DISCUSSION:

In the present study, we evaluated a total of 50 patients with thrombocytopenia and fever. It was observed that dengue was most common among other etiologies for fever with thrombocytopenia. Malaria was the second most common etiology. Furthermore, moderate and mild thrombocytopenia were more prevalent among study population. All the patients with mild thrombocytopenia recovered fully, whereas one patient with moderate thrombocytopenia. 3 patients with severe thrombocytopenia died. NAIR BT et al[7] studied the clinical and laboratory profile of febrile children with thrombocytopenia, associated clinical complications and assess the relationship between platelet levels and severity of disease. The study was carried out in 180 children up to the age of 18 years, seen in Out Patient Department as well as those admitted in the wards of Department of Paediatrics of a 999 bedded hospital in North India from July 2016 to June 2017. They reported that the commonest causes of thrombocytopenia were Viral Fever (other than dengue and chikungunya) 27.78% (50), followed by Dengue 22.2% (40), enteric fever 12.22% (22), chikungunya 11.11% (20), malaria 8.33% (15), septicaemia 5.55% (10), ITP 5.55% (10), haematological malignancy 1.67% (03) and megaloblastic anaemia 1.11%(2). They concluded that viral fevers (non-specific) followed by dengue and chikungunya were the most common causes of fever with thrombocytopenia. in contrast to their study, our study showed dengue and malaria as most common causes of fever with thrombocytopenia. Saini KC et al[8] studied the underlying etiology of fever with thrombocytopenia. A cross-sectional epidemiological study was conducted including 1217 patients aged more than 14 years with fever and thrombocytopenia admitted in the medical wards from October 2013 to September 2014. As per their results, infection was the commonest cause of thrombocytopenia and dengue was the commonest of the infections followed by malaria, similar to our study. Good recovery was noted in 95%, while 5% had mortality. Septicemia accounted for 85.24% of deaths followed by malaria (6.55%) and dengue (5%). Kakanale M et al[9] studied the underlying etiology, the various clinical presentations, laboratory profile and complications of fever with thrombocytopenia in this community during monsoon period and to correlate thrombocytopenia with outcome, co morbidities and its etiology. The study was conducted in tertiary centre in Kolar between June-December 2017. Among 465 patients were included in the study. Dengue was the most common cause for febrile thrombocytopenia and mortality. Hepatic complications and petechiaes were the most common complications and bleeding manifestations. There were 9 deaths in the study and there was no association between death and platelet count at admission. They concluded that there was no relation between platelet count on admission and mortality and also there was no relationship between platelet transfusion and outcome. Sumangala S et al [10] evaluated clinical profile of febrile thrombocytopenia. A cross-sectional study of 160 patients was carried out at Basaveshwar Teaching and General Hospital. Patients with thrombocytopenia who were ≥18 years of age at admission between November 2016 and May 2018 were observed and followed up during their stay in hospital. They report that Infection (88.12%) was the most common cause of thrombocytopenia, while dengue (53.13%) was the most common of the infections followed by malaria (15.63%) and septicemia (8.75%). Good recovery was noted in 92.50%, while 5% had mortality and 2.50% cases were referred. Septicemia was the major cause of mortality.

CONCLUSION:

Within the limitations of the present study, it can be concluded that dengue and malaria are the most common causes for fever with thrombocytopenia in our study population. The recovery rate of patients with mild and moderate thrombocytopenia is fairly positive.

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