Journal of Clinical and Biomedical Sciences

Original Article

A Study of Clinical and Laboratory Profile of Fever with Thrombocytopenia

Harsha N S[1], Thimma Reddy SR[2]*, Shruthi M[3], Ravishankar SN[4], Madhuvan HS[2]
1. Associate Professor 2. Assistant Professor 3. Senior Resident 4. Professor, Department of General Medicine, Akash Institute of Medical Sciences and Research Centre, Devanahalli, Karnataka, India.

Abstract

Background: Infections are the commonest cause of thrombocytopenia. Hence fever associated with thrombocytopenia helps to narrow down the differential diagnosis to infectious causes, plan management and anticipate complications **Aim:** The objective is to identify the possible infectious causes of fever with thrombocytopenia and to study the clinical profile and complications of such patients. **Materials and Methods:** This is a prospective study of 100 patients admitted with fever and thrombocytopenia in a medical college hospital. The clinical profile, infectious causes, outcome and laboratory features are studied. **Results:** Dengue (47%) was the most commonest infectious cause among the patients with fever and thrombocytopenia followed by septicaemia and malaria. Bleeding manifestations were observed in 44% of the patients. Petechial rashes or purpura were the commonest haemorrhagic manifestation (66%) and spontaneous bleeding in the rest of them (34%). Majority of those with spontaneous bleeding had platelet count of <30000/µl. The mortality rate among the series of patients was 11% and septicaemia accounted for 72% followed by malaria in 18%. **Conclusion:** Dengue is the commonest infectious disease among patients hospitalised with fever and thrombocytopenia.

Keywords: Dengue, thrombocytopenia, spontaneous bleeding, febrile illness

Introduction

Fever is a pervasive and ubiquitous theme in human myth, art and science. Fever is such a common manifestation of illness that it is not surprising to find accurate descriptions of the febrile patients in early-recorded history.[1] Hippocrates and later during the Roman empire, physicians gave detailed descriptions of fever and their varied patterns of presentations.[2] Fever is defined as an elevation of the body temperature above the normal circadian range as the result of a change in the thermoregulatory centre located in the anterior hypothalamus. An A.M temperature of >37.2°C (98.9°F) or a P.M temperature of > 37.7°C (99.9°F) would define fever.[2,7] Thrombocytopenia is defined as platelet count <150,000/µl. This is due to decreased production, increased destruction (immunogenic and non immunogenic) and increased sequestration in the spleen. Of these infections is the commonest cause of thrombocytopenia.[3,4] Patients with thrombocytopenia may experience bleeding manifestations like petechiae, epistaxis, gum bleeding, haematuria, gastrointestinal hemorrhage or intracranial bleeding. It is the most common cause of bleeding in children.[5,6,9] Other differential diagnosis for fever with thrombocytopenia are septicaemia, infections like malaria, dengue, leptospirosis, typhoid, HIV and miliary TB.[7,8] Therefore a well organized systematic approach that is carried out with an awareness of causes of fever with thrombocytopenia can shorten the duration of in-

***Corresponding Author**
Dr. Thimma Reddy SR
Asst. Professor, Dept. of General Medicine,
Akash Institute of Medical Sciences and Research Centre, Devanahalli, Karnataka, India.
E-mail: id-drsrtreddy@yahoo.com

vestigations and bring out a diagnosis. Hence, a need for study to know the causes and complications of fever with thrombocytopenia.

Materials and Methods

A series of 100 adult patients admitted to a medical college hospital in Bengaluru rural district with fever and thrombocytopenia was prospectively studied over six month period. Patients having a hospital recorded temperature of >37.2°c in the A.M and 37.7°c in the P.M and a platelet count of <1.5 lakh/µl were only included for this observational study. A structured proforma was used to enter the patient's information which included clinical history, physical examination findings, laboratory investigations, follow-up and outcome information. The clinical case management of the patients admitted was as per the physicians discretion and hospital policy. Patient information was recorded until the time of discharge. The patient information was entered into MS excel and summary statistics were obtained which are presented as proportions.

Results

A total of 100 patients admitted for fever with thrombocytopenia in the department of medicine were studied. Seventy four percent of the patients admitted with febrile thrombocytopenia in the study period were adults aged ≤40 years. The most common cause of admission due to thrombocytopenia was dengue in 47% of the patients followed by septicaemia in 24% and malaria in 13%. The remaining of the patients were found to have enteric fever (9%), leptospirosis (4%), HIV (2%) and SLE (1%). Among the 13 patient with malaria, plasmodium vivax was more common (69%) followed by plasmodium falciparum species (31%). Among the 24 patients clinically diagnosed as septicaemia, urosepsis was the cause in 46% of the patients followed by pneumonia in 29% and cellulitis in 25% of them. In this series of 100 patients, 51% of them had a platelet count range between 60,000 to 90,000/µl at the time of admission to the hospital. The rest of the 49 patients had a platelet count in the range of 30-60 thousand/µl among 27%, 10-30 thousand/µl among 12% and below 10 thousand/µl in 10% of the patients.

Table 1. Demographic profile and outcome of hospitalized patients with fever and thrombocytopenia (n=100)

Characteristic	No (%)
Age (yrs)	
Range (15-80)	
≤ 40	74 (74)
41-60	18 (18)
≥ 61	08 (08)
Sex	
Male	58 (58)
Female	42 (42)
Average duration of hospitalization	7 days
Range of hospitalization days	3-21 days
Recovered and discharged	89 (89)
Died	11 (11)

Table 2. Clinical profile of patients with fever and thrombocytopenia

Characteristic	No. (%)
Fever with chills and rigors	52
Headache	56
Cough and breathlessness	13
Jaundice	43
Altered sensorium	48
Spontaneous bleeding	15
Petichae/purpurae only (without spontaneous bleeding)	29

Clinical manifestation of thrombocytopenia was there in 44 patients where 29 patients (66%) had petichae/purpura and spontaneous bleeding was seen in 15 patients (34%) of which epistaxis in 6 patients (14%), gum bleeding in 5 patients (11%), 4 had bleeding PR in addition to epistaxis and gum bleeding (9%). Out of 100 patients, 89 of them had good recovery and 11 of them expired. Among the 11 patients who expired 8 had septicemia (73%), 2 had malaria (18%) and 1 had leptospirosis (9%). In 89 cases, who had good recovery, 43 cases were followed up and platelet count were near normal after discharge and further

follow up. All the patients were discharged when the platelet count was above 90,000/µl .

Discussion

In our study infections was the established diagnosis in most of the cases as compared to other study in which along with infection 68%, haematological conditions 15%, was also documented. This may be due to seasonal and regional variations. But infection was the commonest cause of fever with thrombocytopenia. Among infections, dengue (47%) the commonest cause as compared to other study in which septicemia (27%) was the commonest cause. This was due to seasonal and regional variations. In our study septicemia was 24% was the second most common cause of fever with thrombocytopenia but dengue 13.8% was the third common cause in other study. In our study haematological condition did not present as fever with thrombocytopenia but in other study it accounted for 15%.

In our study enteric fever (9%) was the fourth most common cause but was second most common cause in the other study accounting to 14.7%. Malaria constituted 13% in our study as compared to 9.2% in other study.[11] In our study 100% diagnosis was made but in other study 18.3% cases remained undiagnosed. In our study thrombocytopenic signs was present in 44% as compared to 41.3% in other study. In our study petichae/purpura (66%) was the commonest bleeding manifestations followed by spontaneous bleeding (34%). In other study spontaneous bleeding was the commonest bleeding manifestation (68%) followed by petichae/purpura accounting for 22.22%, others (9.88%). During the course of follow up platelet count showed increasing trends accounting for 63.3% and continuously falling counts in 7.3% in their study. But in our setup it was very difficult to follow up because of cost, affordability, so only 43% of patients were followed up and it showed increasing trends in platelet count both at the time of discharge and in future follow up. There was no decreasing trends of platelet count observed. In a study conducted by Nair PS, and others at St.Stephen's hospital, New Delhi, for period of one and half years, a total of 109 cases, 76 male, 33 female patients were studied with the same criteria as in our study.[10] Septicemia with 29 cases was the leading cause of fever associated with thrombocytopenia. Second common cause was enteric fever followed by dengue, megaloblastic anaemia, malaria, haematological malignancy with 16, 15, 13, 10, 4 cases respectively.[10] Out of 109 patients 51 patients (46.7%) had platelet count between 60,000-90,000/µl followed by 30 patients (27.5%), 16 patients 14.6% and 12 patients 11% had platelet count between 30,000/µl to 60,000/µl 10,000/µl to

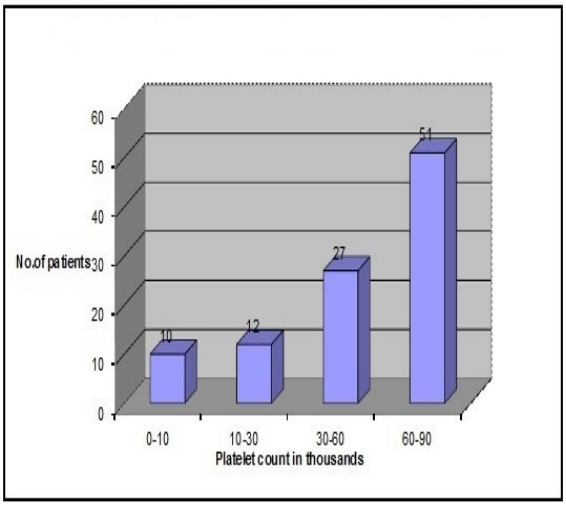

Fig 1. Distribution of platelet count in patients with fever and thrombocytopenia

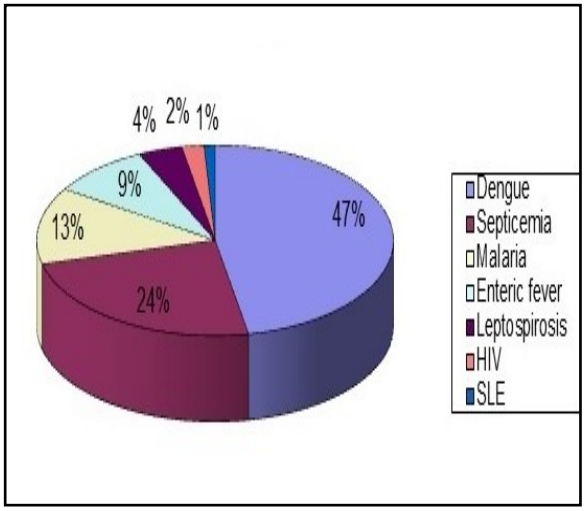

Fig 2. Causes of fever with thrombocytopenia in hospitalised patients

30,000/µl and less than 10,000 respectively. Out of 109 patients 45 patients had thrombocytopenic signs accounting for 41.3%. Out of 45 patients spontaneous bleeding was seen in 31 patients accounting for 69% of the bleeding manifestations.[10] During the course of follow up platelets showed increasing trends in 69 patients (63.3%) and continuously decreasing trends in 8 patients (7.3%).[10] Totally infections represented the most important cause of fever with thrombocytopenia with a relative frequency ranging form 68%-100%.

Conclusion

Thrombocytopenia is common with some of the infections and it could be transient. Dengue, sepsis and malaria are among the common causes of febrile thrombocytopenia. Rarer causes include enteric fever, leptospirosis, HIV and SLE. Primary bleeding manifestations is uncommon with most of the febrile thrombocytopenias. Severe thrombocytopenias may carry bad prognosis. Judicious use of blood and blood components is advocated.

References

1. 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.
2. Mackowiak PA, Boulant JA. Fever's upper Limit : In Fever : basic mechanisms and management. (ed. Mackowiack PA), New York, Lippincott-Raven Publishers, Philadelphia, 1997; pp147-63.
3. 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.
4. 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
5. 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(5); 77-83
6. 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.
7. George JN, Aizvi MA. Thrombocytopenia. In: Williams haematology, 6th Ed, Edt. Ernest Beufler et al, USA: McGraw Hill, 2001 pp1501.
8. Firkin, Chesterman, Penangtion Rush. Ed, Haemorrhagic disorders; Capillary and platelet defects Chapter-14, In:Degruchy's Clinical haematology in Medical practice, 5th Ed; Oxford Black well science, 1989: pp360.
9. Nair PS, Jain A, Khanduri U, Kumar V. A study of fever associatioed with Thrombocytopenia. JAPI, 51: 1173.
10. Jadhav UM, Patkar VS, Kadam NW.Thrombocytopenia in malaria correlation with ype and severity of malaria. J Assoc Physician India, 2004; 52: 615-18.
11. Sharma SK, Das RK, Das BK, Das PK. Haemtological and Coagulation profile in Acute Falciparum Malaria; JAPI 1992; 40 : 581-83.