Original Research Article

Study of acute febrile illness with low platelet count

Haresh Panchal[1], Urvesh Mistry[2*]

[1]Assistant Professor, Department of Medicine, BJ Medical College, Ahmedabad, INDIA.
[2]Assistant Professor, Department of Medicine, GCS Medical College, Ahmedabad, INDIA.
Email: hareshpnchl@gmail.com dr_urvesh@yahoo.com

Abstract

Aim: To Evaluate different cause, Clinical profile and complication of Acute febrile illness with low platelet count. **Material and Method:** Total 200 Patient age>12 year admitted with acute onset of fever (AM temperature>37.2 C and PM temperature >37.7C) and found to have thrombocytopenia (platelet count<150000) are included in the study. **Result:** Out of 200 patients 121 were males and 79 were females. Duration of hospitalization was between 3 to 7 days. Out of 200 patients, most of patients were of malaria (134 patients), followed by dengue fever (40 patients), enteric fever (16 patients), unexplained viral fever (10 patients). So malaria is commonest cause of fever with thrombocytopenia in my study. In malaria, P. vivax (118 patients) was commonest followed by falciparum (14 patients) and mixed malaria (2 patients). **Conclusion:** infection is most common cause of fever with thrombocytopenia. Clinical manifestation of thrombocytopenia was present in only 3 cases and only 3 patient required platelet transfusion while most of patients (197 patients) required only disease specific treatment and platelet transfusion was not given in those patients. So platelet transfusion is rarely needed in patients of fever with thrombocytopenia

Key Word: Dengue Fever, Enteric fever, Malaria, Petechiae, Thrombocytopenia.

[*]**Address for Correspondence:**
Dr. Urvesh Mistry, Assistant Professor, Department of Medicine, GCS Medical College, Ahmedabad, INDIA.
Email: hareshpnchl@gmail.com

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INTRODUCTION

Modern research of fever had its beginning in 1948 when Dr. Paul beeson determined that fever is caused by product of inflammatory cell. IL-1 has been shown to have major role in thermoregulation of fever. Normal body temperature displays a diurnal variation with lower value in early morning and higher in the afternoon. Normal ranges are between 35.8 C(96.5F) and 37.2C(99F). Fever is defined as elevation of body temperature above the normal circadian range as result of the change in the thermoregulatory centre located in the anterior hypothalamus. It is important to be aware of common febrile condition leading to thrombocytopenia and have systemic approach to evaluation and management of these patients. As acute febrile illness with low platelet count is common and physician face large number of patient in his routine practice. As platelet play important role in homeostasis, thrombocytopenia is commonly associated with the risk of bleeding. Mild to moderate thrombocytopenia mostly doesn't cause bleeding. Although skin and mucous membrane bleeding is the most common in thrombocytopenia, major bleeding (ICH) may occur with severe thrombocytopenia. Thrombocytopenia is defined as subnormal number of platelet (<1,50,000/µl) in circulatory blood. Normal platelet count is 1,50,000 to 4,50,000/µL. There are so many cause of thrombocytopenia but when patient's presentation is fever with thrombocytopenia, possibilities of infectious etiologies are high in our set up. In our geographic distribution infectious causes like malaria (both P.vivax and P. falciparum),enteric fever, dengue fever are commonly associated with thrombocytopenia with mild to moderate degree. Most of these patients require only disease specific treatment, only those patients who are at risk of bleeding or already having bleeding manifestation due to thrombocytopenia require platelet transfusion.

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OBJECTIVE

1. To evaluate different causes of acute febrile illness with thrombocytopenia which are common in our geographic distribution
2. To determine which diseases are common in our set up
3. To evaluate clinical profile of fever with thrombocytopenia
4. To assess clinical complications associated with fever with thrombocytopenia.

MATERIAL AND METHODS

A study was done on the patients, who were admitted to General hospital during period of January 2018 to December 2018. Study was done on 200 patients who were presented with acute onset of fever and having low platelet count.

Criteria for selection of the patients

Inclusion criteria:

- The patient of both sexes and > 12 year
- Patient admitted with acute onset of fever (AM temperature>37.2 C and PM temperature >37.7C) and found to have thrombocytopenia (platelet count<150000) are included in the study.

Exclusion criteria:

- Patients <12 yrs are excluded
- Patients having fever but no thrombocytopenia are excluded
- Patients having thrombocytopenia but no fever are exclude
- Inherited cause, autoimmune, drug induced cause of thrombocytopenia, thrombocytopenic purpura, hematological cause like leukemia and myelodysplastic syndrome, HELLP syndrome, DIC of non infective etiology are excluded
- Chronic cause like HIV and cirrhosis of liver are excluded.

Detailed clinical history was taken in each patient. Detailed physical examination including systemic examination was carried out in all patients. Routine investigation along with CBC was carried out in all patients. The special investigation like S. widal, serological test, G6PD was carried out as and when required. All patients were treated with disease specific treatment and platelet transfusion was given as per indication. Platelet count was repeated on discharge in indicated patients.

RESULT AND DISCUSSION

Total number of 200 patients admitted over my study period in our hospital were studied. No particular age group was considered, but study was conducted in age above 12 year. Out of 200 patients 121 were males and 79 were females.Duration of hospitalization was between 3 to 7 days. Out of 200 patients, most of patients were of malaria (134 patients), followed by dengue fever (40 patients), enteric fever (16 patients), unexplained viral fever (10 patients). So malaria is commonest cause of fever with thrombocytopenia in my study. In malaria, P. vivax (118 patients) was commonest followed by falciparum (14 patients) and mixed malaria (2 patients). Most common range of platelet at time of admission was 81-100 thousands in 54 cases, followed by 61-80 thousands in 42 cases, 101 -120 thousand in 31 cases, 41-60 thousands in 26 cases, 32-40 thousands in 20 cases, 1-20 thousands in 15 cases, 121-140 thousands in 12 cases. Clinical manifestation of thrombocytopenia was there in only 3 patients and only 3 patients required PRC while all other patients required only disease specific treatment. Out of 3 patients, 1 patient had petichae and 2 patients had hematuria. Out of 200 patients, 198 had good recovery and only 2 of them expired. In 198 cases, who had good recovery, 118 cases were subjected for repeat platelet count at discharge or at follow up and platelet count were near normal. In 2 mortality, 1 was due to P. vivax, and 1 was due to P. falciparum.

Table 1: Preliminary data of the study

Total no. of patients	200
Age range in years	Above 12
Male and Female	121 : 79
Range of duration of hospitalization (days)	3-7 days
Average duration of hospitalization (days)	4 days
Malaria as the common cause	134
In malaria, vivax as common cause	118
81,000-100,000 was common range of platelet count at time of admission	54
Clinical manifestation of thrombocytopenia	In 3 patients
Spontaneous bleeding/Petichae	In 2/1 patients
Good recovery	198 patients
Mortality	2 patients
Malaria is commonest cause of mortality	2 patients

Table 2: Distribution of platelet count at time of admission

Platelet count (1000's)	No. of patient	Percentage (%)
1 to 20	15	7.5
21 to 40	20	10
41 to 60	26	13
61 to 80	42	21
81 to 100	54	27
101 to 120	31	15.5
121 to 140	12	6

Table 3: Sign of Thrombocytopenia compared with platelet count

Platelet count					
<10000		10000 to 20000		>20000	
Petechia or Purpura	Spontaneous bleeding	Petechia or Purpura	Spontaneous bleeding	Petechia or Purpura	Spontaneous bleeding
1	1	0	1	0	0

Only one patients had Petechia belongs to DHF class and 2 patients had Spontaneous bleeding in form of hematuria, one belongs to DHF class and another belongs to P. vivax.

Table 4: Treatment of patients with PRC

Platelet Count			
<10000		>10000	
Required transfusion Plus Disease specific treatment	Disease specific treatment only	Required Transfusion Plus Disease specific treatment	Disease specific treatment only
2	0	1	197

Table 5: Study of disease

Type of disease	No. of patient	Percentage (%)
Dengue	40	20
Enteric	16	08
Malaria	134	67
Unexplained VF	10	05

Table 6: Type of dengue fever

	No. of patients	Percentage
Dengue fever	30	75
Dengue hemorrhagic fever Type 1-2	10	25
Dengue hemorrhagic fever Type 3-4 (DSS)	0	0

Table 7: Types of malaria

Type of malaria	No. of patient	Percentage (%)
PV	118	88.06
PF	14	10.45
MIXED (PV + PF)	02	1.49

Table 8: Complication of Malaria

	No. of patients
Uncomplicated	124
Hepatitis	8
ARF	6
Hepatitis with ARF	5
ARDS	1
Cerebral malaria	0

Complication of malaria was seen in 10 patients (only 7.46%), while most of the patients were uncomplicated.

Table 9: Mortality Study

Outcome	No. Of patient	Percentage
GOOD	198	99%
EXPIRED	2	1%

All 2 death was due to malaria. One death was due to P. falciparum and one death was due to P. vivax malaria. No death due to dengue and others cause was reported in my study. In P. vivax death was due to ARDS and in P. falciparum it was due to Multi organ dysfunction syndrome.

Comparison Study

Srinivas study: This study was conducted by Srinivas in 2006 at Bangaluru, Karnataka. Total 100 cases were studied.

Disease category	Srinivas study		Present study	
	No. of cases	Percentage	No. of cases	Percentage
Malaria	41	41	134	67
Enteric fever	24	24	16	08
Septicemia	19	19	00	00
Dengue/VF	14	14	50	25
Leptospirosis	02	02	00	00

Malaria is common cause in both our and Srinivas study. Dengue and other VF is next common cause in our study as compared to enteric fever in Srinivas study.

SUMMARY AND CONCLUSION

- Male to Female ratio being 6:4. These factors any way were not considered in our study.
- The duration of hospitalization was 3-7 days.
- Among the diagnosed cases, malaria formed the largest group with 67%, Dengue 20%, enteric fever 8% and unexplained viral fever 5%. So infection is most common cause of fever with thrombocytopenia.
- Among malaria, P.vivax formed the largest group with 88.06% followed by P.falciparum and mixed malaria with 10.45%, 1.49% respectively. So P.vivax is most common cause of fever with thrombocytopenia in my study.
- Common range of platelet at the time of admission was 81000-100000 in 54 cases, followed by 61-80 thousands in 42cases, 101-120 thousands in 31 case, 41-60 thousands in 26 cases, 21-40 thousands in 20 cases, 1-20 thousands in 15 cases, 121-140 thousands in 12 cases.
- Clinical manifestation of thrombocytopenia was present in only 3 cases and only 3 patient required platelet transfusion while most of patients (197 patients) required only disease specific treatment and platelet transfusion was not given in those patients. So platelet transfusion is rarely needed in patients of fever with thrombocytopenia.
- In general 198 patients had good recovery and only 2 had mortality. So mortality is very rare in fever with thrombocytopenia.
- In 2 mortality cases, one was due to P.falciparum and one was due to P.vivax. DHF and DSS cases in my study being in small number, Exact figures of mortality can not be calculated.
- Mortality of P.falciparum with low platelet count is 7.14% (1 out of 14 case) and P.vivax with low platelet count is 0.84% (1 out of 118 cases).
- During discharge or at follow up Most of patients were having near normal platelet count.

REFERENCES

1. Comprehensive guidelines for prevention and control of Dengue and Dengue Hemorrhagic fever, Revised and Expanded Edition WHO: page24-25
2. Aahealth.org/Physicianslink/ppt/viral Hemorrhagic fever.
3. 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.
4. Woodward T.E. "The Fever Pattern as a Diagnostic Aid: In Fever: basic mechanism and management". (ed. Mackowiack P.A), New York, Lippincott-Raven Publishers, Philadelphia, 1997:pp215-235.
5. George JN, Aizvi MA. Thrombocytopenia. Chapter-117, In: Williams haematology, 6th Ed, Edt. Ernest Beufler *et al*, USA: McGraw Hill, 2001 pp1501.
6. Dinerarello C.A., and Wolf M.S. "Fever of Unknown Origin", Chapter 40 3rd Edn, Principles and practices of infectious disease, Mandell G.L., Douglas R.G. Jr., Bennett J.E,eds, New York, J. Wiley 1990 : pp468-479.
7. Mackowiak, P.A., Boulant, J.A., "Fever's upper limit: In Fever: basic mechanisms and management". (ed. Mackowiack P.A), New York, Lippincott-Raven publishers, Philadelphia, 1997; pp147-163.
8. Dinarello, C.A. "Cytokines as Endogenous Pyrogens : In Fever : Basic mechanism and management". (ed. Mackowiack P.A), New York, Lippincott-Raven publishers, Philadelphia, 1997; pp87-116.
9. Blatteis C.M. and Elmir Sehic "Prostagalndin E: A putative fever mediator: In Fever: basic mechanisms and management" (ed. Mackowiack P.A), New York, Lippincott-Raven publishers, Philadelphia, 1995; pp117-145.
10. Boulant, J.A. "Thermoregulation: In Fever: basic mechanisms and management" (ed. Mackowiack P.A), New York, Lippincott-Raven publishers, Philadelphia, 1997; pp35-38.

11. Dinarello, C.A. " New concepts in the pathogenesis of fever". Rev Infect Dis 1988; 10: 168.
12. Moseley P.L. "Heat shock Proteins: In Fever: basic mechanisms and management". (ed. Mackowiack P.A), New York, Lippincott-Raven publishers, Philadelphia, 1997; : pp 197- 206.
13. Nair PS, Jain A, Khanduri U, Kumar V. "A study of fever associated with Thrombocytopenia". JAPI, Dec 51: 1173.
14. Kakar A. Bhoi S, Prakash V, Kakar s. Profound thrombocytopenia in plasmodium vivax malaria. Diagn Microbial Infect Dis 1999; 35: 243-4
15. Skudodwiz R, Katz J, Lurie A, Mechanism of Thrombocytopenia in malignant tertian malaria, BMJ 1973; 1: 151-8.
16. Looareesuwan S, Davis J, Allen D. Thrombocytopenia in malaria. South Asian J Trop Med Publ, 1993; 23: 44-50.
17. Rueda E, Mendez A, Gonzalez G. haemophagocytic syndrome associated with dengue haemorrhagic fever. Biomedical, 2002 Jun; 22(2): 160-6.
18. I Jamaiah, *et al*. retro spective study of dengue fever and dengue hemorrhagic fever patients at university Malaya Medical center, Kuala lumpur, Malaysia in the year 2005.

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