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Clinical Profile of Fever with Thrombocytopenia in Tertiary Hospital, Jhalawar Medical College

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ABSTRACT
Introduction- *Fever with thrombocytopenia has become the commonest presenting problem in the medical wards. Various infectious causes are there for fever with thrombocytopenia. It is necessary to know the cause, which will be useful to give proper treatment to the patient.*
Aims: *The object is to determine possible infective etiology for fever with thrombocytopenia and to study the presentation and complications of thrombocytopenia*
Material and Methods: *This was a prospective study conducted on 100 patients with fever and thrombocytopenia, admitted in department of medicine and paediatrics, Jhalawar Medical College, Jhalawar*
Results-*100 patients of fever with thrombocytopenia Dengue (43%) was the commonest cause of fever thrombocytopenia followed by Malaria (41%) and other viral fever. Maximum percent of bleeding seen at 20000 to 50000 cumm platelet count. Out of 100 patients 12 patients showed bleeding manifestations. The Commonest form of bleeding manifestation was petechiae in 10 patients followed by GI Bleed in 2%. We conclude that the febrile illness patients should be investigated for platelet count whether they have bleeding manifestations or not. Strong probability of dengue fever or other common causes like malaria, viral fever and enteric fever should be kept in mind in any case of fever.*
Keywords- *Fever, thrombocytopenia, Malaria, Bleeding manifestation.*

AIMS AND OBJECTIVE

The object is to determine possible infective etiology for fever with thrombocytopenia and to study the presentation and complications of thrombocytopenia.

INTRODUCTION

Sir William Osler stated "Humanity has three great enemies: Fever, famine and War; of these, by far the greatest, by far the most terrible is fever". Carl Reinhold August Wunderlich (1815 - 1877), in his book, Das Verhalten der Eigenwarme in Krankenheiten (the course of temperature in diseases) gave 98.6° F (37°C) its special significance Vis-à-vis the normal temperature. He described the normal diurnal variation of the body temperature. He established 100.4°F (38°C) as the upper limit of the normal

range and gave the first 4 quantitative definition of fever. Wunderlich is generally regarded as the father of clinical thermometry [1]. The current concept of fever physiology is that, host cell-derived molecules induce fever, which usually occurs in the context of an overall inflammatory response directed against pathogenic microbes. Kluger and co-workers provided proof that endotoxin-induced fever is mediated by IL- 1 B induction of IL- 6, suggesting that IL- 6 might be the final common pathway for such fever [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 AM temperature of >37.2°C (98.9°F) or a P.M. temperature of > 37.7°C (99.9°F) would define fever [3] Thrombocytopenia is defined as a reduction in the peripheral blood platelet count below the lower limit of 150,000/µl. Because platelet counts are prone to error, a single platelet count that is lower than normal should be confirmed by a second count. It should also be confirmed by inspecting the blood film [4,5]. The life span of platelets once they enter the circulation is about 8- 10 days. About 10% of the population is destroyed each day [5]. Thrombocytopenia may result from impaired platelet production, accelerated platelet destruction, or dilution/splenic sequestration [4,5] . Of these infections being the commonest cause of thrombocytopenia [4,6]

Table 1: Thrombocytopenia Associated With Infection

Cause	Mechanism
1.Viral: Dengue,CMV,HIV etc[5]	A. Impaired platelet production B. Accelerated destruction by forming Ag-Ab complex [5]
2. Bacterial: Gram +ve and gram -ve septicemia, military tuberculosis, leptospirosis, typhoid , mycoplasma pneumonia, etc [5,7]	a.May be caused by disseminated intravascular coagulation (DIC) b.Increased clearance of platelets [5,7]
3. Protozoal : Malaria,Brucella [5]	Immune mediated destruction
4.Others :Lymphomas, Leukemias [5]	Marrow infiltration – Impaired production

Table 2: Clinical Complications Of Thrombocytopenia

Platelet count	Symptoms	Bleeding time
>1 Lakh	Asymptomatic	Normal[4]
50000 – 1 Lakh	Bleeding after severe trauma	Mild increase[4]
<50000	Easy bruising, Purpura after minor trauma	Increase[4,5]
<20000	Spontaneous bleeding, Petechiae, Internal or Intracranial bleed	Increase[4,5]

MATERIAL AND METHOD

Method of Study: This was a prospective study conducted on 100 patients with fever and thrombocytopenia, who were admitted in department of medicine and paediatrics, Jhalawar Medical College, Jhalawar.

Inclusion criteria

1. The patients of both sexes age group 10 to 40 years.
2. Patients admitted with fever and found to have thrombocytopenia are included in the study.

Exclusion criteria

1. 1.Patients aged below 10 year and above 40 years
2. Patients with fever and no thrombocyt-openia are not included or vice versa.
3. 3.Previously diagnosed conditions which can lead to thrombocytopenia such as ITP, cirrhosis, chronic liver disease, patients on drugs (aminosalicylic acid, Linezolid, Amiodarone Carbamazepine, Captopril, Methyldopa) causing thrombocytopenia were excluded.

RESULTS AND OBSERVATIONS

A total of 100 patients admitted over a period of 3 month in our hospital were studied. The study subjects were in the age group of 10-40 years. Out of 100 patients suffering from fever with

thrombocytopenia, 60 were male and 40 were females.

Table-3, Age-wise distribution

Age (Years)	No. Of cases
10-20	62
21-30	18
31-40	20

Table-4, Platelet count distribution

Platelet counts	No. Of cases
< 20,000/mm3	8
20,001-50,000/mm3	22
>50,001/mm3	70

Table-5, Clinical feature

Sign and symptoms	No. Of cases
Fever	100 (100%)
Headache	73 (73%)
Vomiting	72 (72%)
Abdominal pain	52 (52%)
Splenomegaly	38 (38%)
Anemia(Hb <12.5)	34 (34%)
Hepatomegaly	32 (32%)
Joint pain	22 (22%)
Generalized body ache	16 (16%)
Petechial rashes	10 (10%)
Hypotension	6 (6%)
CNS	4 (4%)
GI bleed	2 (2%)

Table-6, Etiological diagnosis

Etiology of cases of fever with thrombocytopenia Diagnosis		Percent	Count
Malaria (41)	Falciparum malaria(FM)	27%	27
	Vivax malaria(VM)	4%	4
	Mixed malaria (FM+VM)	10	10
Dengue (43)	IgG Positive	0 %	0
	IgM positive	6 %	6
	NS1 positive	33 %	33
	NS1+IgM positive	4 %	4
Malaria with Dengue		2 %	2
Enteric fever		6 %	6
Undifferentiated Fever		10 %	10

DISCUSSION

The causes of febrile thrombocytopenia in our study was Dengue 43%, Malaria 41 % followed by Undifferentiated viral fever 10% and enteric 6%. Similar results were obtained in Srinivas study [8] while Nair study [9] had septicemia as the major cause of thrombocytopenia.

For a study of fever with thrombocytopenia, cases must satisfy the above mentioned criteria, case collection is necessary and careful follow up is required Once the case admitted with fever and those who had thrombocytopenia, a careful history was recorded, general physical examination and detailed examination of various systems was done. Routine investigation, the specific and special investigations were done as and when indicated. In the patients in whom a definite diagnosis was reached, were treated for the that specific disease and platelet count was repeated at the time of discharge. Patients discharged were not followed up. Nair PS et al [9]. (2003) studied the profile of thrombocytopenia as associated with acute febrile illnesses and to determine the etiology of these febrile illnesses. They studied total of 109 patients, 76 males and 33 females with male as to female ratio of 2.3:1. Gandhi A et al (2015) [10] found that malaria(42%) was the most common cause followed by dengue (26%),undifferentiated fever (17%), enteric fever (4.46%) and septicemia (4.5%). Raikar s (2013) [12] found that dengue (52%) was the most common cause of thrombocy-topenia then malaria (42%), enteric fever (3%). In our study out of 100 cases commonest cause was dengue fever with 43 (43%), malaria with 41(41%) undifferentiated fever, with 10(10%) cases followed by enteric fever with 6 (6%) cases. In our study hematological conditions are excluded, and in those cases all the available investigations are negative they are labelled as probable diagnosis of Undifferentiated b viral fever, which was labelled as unknown etiology in Nair et al.(2003) [9] study.

Table-7, comparison with other studies

Comparison of cause of thrombocytopenia Diagnosis	Nair Study [9]	Srinivas study[8]	Gandhi A et al (10)	Nikalje Anand [11]	Raikar s (2013) [12]	Present study
Dengue	14 %	14 %	26%	26%	52%	43%
Malaria	09 %	41 %	42%	36%	42%	41%
Enteric fever	15 %	24 %	5%	6%	3%	6%
Others (Undifferentiated viral fever)	18 %	2%	17%	28%	4.5%	10%

Table-8 Comparison of thrombocytopenia with other studies

Distribution of platelet count in thousands	Nair et al (2003) [9]	Nikalje Anand [11]	Present study
0 – 20	17.5	15.33	8%
20 – 50	25.7	45.0	22%
>50	56.8	38.66	70%

CONCLUSIONS

The range of cases was 10 to 40 years years and male to female ratio was 3:2. A definitive diagnosis was not made in10% cases and labelled as undifferentiated fever. Among 43% cases of dengue, 33 % cases were of NS1 positive, 6% were of IgM positive, and 4 % cases was positive for both NS1 and IgM. Among 41 cases of malaria, 27 cases were of falciparum malaria, 4 were of vivax malaria and 10 cases with mixed malarial infection. Bleeding manifestations were noted with platelet count of <50000 cumm. Vigilance and awareness is needed in the management of cases of fever with thrombocytopenia. In future various pathological and microbiological imaging modalities should be needed for research and diagnosis of many viral hemorrhagic fevers. Serological diagnosis of viral infections is expensive, limited and cumbersome. Owing to limited resources and laboratory facilities, hence the diagnosis of fever could not be made in majority of cases. Extensive analysis of particular febrile illness has not been attempted due to multiple etiologies of febrile thrombocytopenia.

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