

Clinical profile of patients presenting with fever and thrombocytopenia

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Abstract

Objective: To study correlation between etiology and clinical profile of patients presenting with fever and thrombocytopenia, to study correlation between bleeding manifestations and platelet count and to study predictive value of Hess tourniquet test in patients with fever and thrombocytopenia. **Study design:** prospective observational study. **Methods:** In present study 150 children from age 2 months to 12 years who presented with fever and thrombocytopenia were included using simple random sampling method. Patients were evaluated thoroughly. Detail history was taken and general examination, systemic examination and Hess tourniquet test was performed on each patient and results were recorded. All patients who were included in study underwent necessary investigations including Complete blood count, Peripheral smear, Haematocrit, LFTs, KFTs, Serum electrolytes, Serum proteins, Dengue IgG and IgM, Chikungunya IgG and IgM, Rapid malaria test, Widal test, Tourniquet test, Blood culture, X-ray chest and USG abdomen. In special situations other tests like Coagulation profile, Weil Felix test, IgM ELISA for leptospirosis, CSF study, NCCT / MRI Brain were done. These patients were followed up and their course in ward, treatment and its outcome was noted. **Results:** Out of 150 cases Dengue fever was major cause accounting for 69 (46%) of total cases second major cause was Unspecified Haemorrhagic Fever accounted for 41(27.3%) followed by Malaria accounted for 21(14%), Enteric Fever accounted for 12(8%), Rickettsial Fever accounted for 06 (4%), Leptospirosis 01 (6%). Bleeding manifestations were present in 95/150 pts in the form of petechie, hematemesis, malaena, epistaxis. 6.3% of patients who had bleeding manifestations had platelet count in the range of 0-20 thousand/cumm, 31.5% of patients had platelet count in the range of 20-50 thousand/cumm, 62.1% of patients had platelet count in the range of 50-100 thousand/cumm. Tourniquet test was positive in 16% of cases of total cases and negative in 84% of cases. Among positive cases DHF contributed to 54%, Unspecified haemorrhagic fever contributed to 29%, Dengue Fever 12%, DSS 4% of total positive cases. Maximum mortality was in Dengue infection which contributed to 77.7% of deaths followed by Unspecified Hemorrhagic fever, which contributed to 22.2 % of total deaths. **Conclusions:** Infection is the commonest cause of fever and thrombocytopenia. Dengue fever found to be largest group with 69(46%) followed by Unspecified haemorrhagic fever 41(27.3%), malaria 21(14%), Enteric fever 12(8%), Rickettsial fever 6(4%) and Leptospirosis 1(0.6%). There is no correlation between platelet count and bleeding manifestations. Tourniquet test is a very nonspecific tool for classification of DHF and DF patients and also it is not an early predictor of spontaneous hemorrhage. **Keywords:** Fever, thrombocytopenia, Dengue.

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Received Date: 17/10/2016 Revised Date: 13/11/2016 Accepted Date: 21/12/2016

Access this article online

Quick Response Code:



Website:

www.medpulse.in

DOI: 08 January
2017

INTRODUCTION

Fever is one of the most common clinical complaints met with and thrombocytopenia associated with it is becoming commoner clinical condition. The prompt diagnosis and treatment of fever with thrombocytopenia will decrease cost, morbidity, mortality associated with it. Platelet count below 150,000 is considered as thrombocytopenia. Many bacterial and viral infections result in thrombocytopenia and are the most common non iatrogenic causes for thrombocytopenia. Infections can affect both platelet production and survival. Many common causes for fever and thrombocytopenia in tropics have been viral, bacterial and protozoal infections.¹ Malaria is a common infection in most parts of world, all

complications usually associated with *P. falciparum* malaria, have also been reported in *P. vivax* malaria. Typhoid is one of the most important disease, caused by *Salmonella typhi*. Leptospirosis is a spirochetal disease caused by *Leptospira interrogans*. The spirochetes also infect rats, dogs, cattle, sheep and swine. Rickettsial infections are the tick borne diseases. Patients present with fever, headache and rash. If untreated can lead to fatal outcome. Chikungunya fever is developing in endemo-epidemic pattern in many rural areas of tropical Africa and urban areas of Asia. Chikungunya presents as sudden onset of fever accompanied by incapacitating joint pain. Other clinical manifestations include epistaxis and gum bleeding due to thrombocytopenia. Respiratory failure, cardiovascular decompensation, meningoencephalitis, other CNS problems, severe acute hepatitis and kidney failure less commonly observed in children.³ Dengue fever is an acute illness caused by viruses belonging to flaviviridae family transmitted to humans through the bite of infective female *Aedes* mosquitoes. The Clinical manifestations of Dengue virus infection vary from asymptomatic to severe life threatening illness in the form of DHF/DSS. The world Health Organization (WHO) has published guidelines for the diagnosis and management of Dengue infection (WHO 1997). One of the features which may be used in clinical case definition of DHF is a positive Hess tourniquet test. The tourniquet test reflects both capillary fragility and thrombocytopenia when made on first day of admission may predict these complications and could facilitate decision making in emergency rooms in order to prevent or treat major haemorrhagic complications in time. Evaluating the patient who presents with fever and thrombocytopenia can be challenging because the differential diagnosis is extensive and include minor and life threatening-illness. In addition clinical picture can vary considerably. In this study we are trying to evaluate different presentations and complications of patients presenting with fever and thrombocytopenia.

METHODS

This is prospective observational study done in tertiary care government medical college and hospital from September 2011 to December 2012. In our study 150 children from age 2 months to 12 years who presented with fever and thrombocytopenia [Platelet count of <1,50,000/ cubic millimeters] were included using simple random sampling method. Diagnosed cases of platelet disorder and dysfunction, Patients on treatment with antiplatelet drugs causing thrombocytopenia, Patients with cirrhosis and chronic liver disease, HIV infections, haematological disorder or malignancy, patient on treatment with chemotherapy and other immunosuppressants and patients presenting with

thrombocytopenia without fever were excluded. Patients were evaluated thoroughly .Detail history was taken and general examination, systemic examination and Hess tourniquet test was performed on each patient and result were recorded. Tourniquet test was performed according to guidelines published by WHO. The test was done by inflating a blood pressure cuff on an upper arm at a point between systolic and diastolic pressure for 5 minutes. The test is considered positive when 20 or more petechiae per 2.5cm² are observed over forearm. If patient present with shock, test was performed again after recovery of shock. All other diseases which present with fever, rash and haemorrhagic manifestations but do not satisfy the clinical/laboratory criteria of Dengue haemorrhagic fever were classified under unspecified hemorrhagic fever. All patients who were included in study underwent necessary investigations including Complete blood count, Peripheral smear, Haematocrit, LFTs, KFTs, Serum electrolytes, Serum proteins, Dengue IgG and IgM, Chikungunya IgG and IgM, Rapid malaria test, Widal test, Tourniquet test, Blood culture, X-ray chest and USG abdomen .In special situations other tests like Coagulation profile, Weil Felix test, IgM ELISA for leptospirosis, CSF study, NCCT / MRI Brain were done. These patients were followed up and their course in ward, treatment and its outcome was noted.

RESULTS

Table 1: Showing Incidence of various causes of fever with thrombocytopenia

Disease category	No of patients	Percentage
Dengue	69	46%
Malaria	21	14%
Enteric fever	12	8.0%
Rickettsial fever	06	4.0%
Unspecified Haemorrhagic Fever	41	27.3%
Leptospirosis	01	0.6%
Chikungunya	0	0.0%
Total	150	100%

Table 2: Showing bleeding manifestations in relation to platelet count

Bleeding manifestations (n=95)	Platelet count in thousands/cumm		
	0-20	20-50	50-100
Malena	03	16	37
Hematemesis	0	0	6
Epistaxis	1	3	7
Petechiae	2	11	9
Total	06(6.3%)	30 (31.5%)	59 (62.1%)

Out of 150 patients 63.3% (95/150) patients had bleeding manifestations in form of petechie, hematemesis, malaena, epistaxis [table 2]. 6.3% of patients who had bleeding manifestations had platelet count in the range of 0-20 thousand, 31.5% of patients had platelet count in the range of 20-50 thousand, 62.1% of patients had platelet count in the range of 50-100 thousand.

Table 3: Result of tourniquet test in various disease categories

Disease category	No. of patients with positive Tourniquet test (n=24)	Percentage
DF	3	12%
DHF	13	54%
DSS	1	4%
Unspecified Haemorrhagic Fever	7	29%
Total	24	100%

Torniquet test was positive in 16% (24/150) of cases of total cases . Among positive cases DHF contributed to 54%, Unspecified haemorrhagic fever contributed to 29%, Dengue Fever 12%, DSS 4% of total positive cases.

Table 4: Showing Analysis of symptomatology and physical examination

Symptoms (n=150)	No. of cases	Percentage	DF	DHF	DSS	UHF	Malaria	ENT	RF	Lepto	CKG
Fever	150	100%	14	49	01	41	21	12	06	01	0
Vomiting	52	34.6%	05	18	02	13	03	07	0	01	0
Abd pain	57	38%	07	18	01	16	07	06	01	01	0
Headache	43	28.6%	03	13	0	10	09	05	01	0	0
Myalgia	37	24.6%	05	13	0	10	05	03	01	0	0
Rash	54	36%	04	18	03	12	02	04	04	0	0
Retro orbital pain	43	28.65%	02	12	03	17	07	02	0	0	0
Cough	37	24.6%	02	17	02	08	05	02	02	0	0
Alt sensorium	18	12%	03	05	03	03	02	01	01	0	0
Convulsions	22	14.6%	02	05	03	03	03	03	02	0	0
Bleeding manifestations	95	63.3%	01	48	6	22	08	03	06	01	0
Pallor	73	48.6	02	24	5	02	12	04	02	0	0
Icterus	04	2.6	0	01	0	01	01	0	0	01	0
Edema	58	38.6	0	23	05	14	10	02	04	0	0
Cold ext	24	16	0	14	06	0	01	03	0	0	0
Petechiae /purpura	22	14.6	0	13	03	04	0	0	02	0	0
Tachypnoea	16	10.6	01	05	02	04	02	01	01	0	0
Hepatomegaly	44	29.3	04	19	03	08	03	04	02	01	0

In this study most prominent symptom was fever in almost all cases followed by bleeding manifestations, abdominal pain, rash, vomitings, Headache, swelling over body, myalgia, cough, convulsions and altered sensorium. On physical examination most common sign Pallor was seen in 73 (48.6%) cases, followed by Edema In 58 (38.6%), Hepatomegaly in 44 (29.3%), cold extremities 24(16%) Petechiae and Purpura 22(14.6%), HS megaly 22(14.6%), Tachypnoea 16(10.6%), and Icterus was seen in 04 (2.6%).

DISCUSSION

This is hospital based prospective observational study of the patients presented with fever and thrombocytopenia. admitted in tertiary referral center and medical college conducted during a period of one year. Aim of the study was to study correlation between etiology and clinical profile of patients presenting with fever and thrombocytopenia, to study correlation between bleeding manifestations and platelet count and to study predictive value of Hess torniquet test in bleeding manifestations in patients with fever and thromobocytopenia. In the present study pts were studied in the age range of 2 months to 12

years with high Incidence between age group of 6 yr to 12 years. Male and females were affected equally. Out of 150 cases a definitive diagnosis could be made in all of them. Among them Dengue was major cause accounting for 69 (46%) of total cases second major cause was Unspecified Hemorrhagic fever accounted for 41(27.3%) followed by Malaria accounted for 21(14%), Enteric Fever accounted for 12(8%), Rickettsial Fever accounted for 06(4%), Leptospirosis 01(6%).

CONCLUSIONS

Infection is the commonest cause of fever and thrombocytopenia. Among the diagnosed cases, Dengue infection found to be largest group with followed by Unspecified haemorrhagic fever, malaria, Enteric fever, Rickettsial fever and Leptospirosis. There is no correlation between platelet count and bleeding manifestations signifying that there must be other factors like platelet dysfunction and disseminated intravascular coagulation responsible for bleeding other than thrombocytopenia alone. Additional studies are necessary to confirm our results in different population. Tourniquet test is a very nonspecific tool for classification of DHF

and DF patients and also it is not an early predictor of spontaneous hemorrhage.

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Source of Support: None Declared
Conflict of Interest: None Declared