Original Article

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Common Etiology of Acute Fever with Thrombocytopenia in a Tertiary Care Hospital, Mysuru

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Abstract

Background: Acute fever with thrombocytopenia is a common problem with increased mortality and morbidity if not diagnosed and treated properly in time. So, in addition to common causes such as dengue, malaria, chikungunya, enteric fever, and sepsis, it is wise to suspect rickettsial in patients with rash and multiorgan dysfunction syndrome (MODS) also as therapy is simple and results rewarding.

Materials and Methods: A total of 150 patients who were admitted to Krishna Rajendra Hospital, Mysuru, Karnataka, India during June 2014 to November 2015 were retrospectively studied.

Results: Most common cause was dengue and unspecified fevers followed by sepsis. 6.6% cases had fever and rash and MODS raising a high degree of suspicion for rickettsial, and they responded well to Doxy. Only 6 patients had bleeding and it occurred only in patients with platelet count <20,000. In our study, mortality occurred in total 7 cases.

Conclusion: Fever with thrombocytopenia is a very common problem. Unspecified fevers were the most common followed by dengue and sepsis and next most probably rickettsial. So, it is necessary to also keep rickettsial diagnosis in mind as we can reduce mortality and morbidity can be reduced with simple DOXY therapy. Further prospective studies are needed to uphold this.

Key words: Fever with thrombocytopenia, Multiorgan dysfunction syndrome, Rash, Rickettsial

INTRODUCTION

Acute fever with thrombocytopenia (platelet count less than 150,000) is a common clinical problem in our medical wards. Common causes include dengue, malaria, leptospirosis, chikungunya, enteric fever, rickettsial fever, and Japanese encephalitis.[1,2]

Fever with thrombocytopenia patients having multiorgan dysfunction is better evaluated for scrub typhus as the treatment is so simple with doxycycline and rewarding. Otherwise, they go for mortality and morbidity.

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Scrub typhus could be one of the important causes of acute febrile illness with multiorgan involvement. Many of the cases remain undiagnosed and therefore not treated resulting in high mortality.

Scrub typhus is grossly under-diagnosed in India due to its non-specific clinical presentation, limited awareness and low index of suspicion among clinicians, and lack of diagnostic facilities.[3-5]

The World Health Organization identifies scrub typhus as a re-emerging disease in South-East Asia and the South-Western Pacific region with a case fatality rate of up to 30% in untreated cases and stresses the need for its surveillance.

Rickettsial diseases in India: Not as uncommon as believed. Even scrub typhus is common in the month of July to November when dengue, chikungunya, leptospira, malaria, etc., are also more in the same months.

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Scrub typhus is under-reported in our area, and it should be considered as an important differential diagnosis in febrile patients with thrombocytopenia, especially with multiorgan dysfunction syndrome (MODS).[6-10]

Early diagnosis and appropriate treatment is rewarding and prevents morbidity and mortality in rickettsial disease.

So, this study is intended to find out the various causes of acute fever with thrombocytopenia in our patients and with special reference to rickettsial illness. Moreover to assess outcome associated with various etiology and to correlate the clinical features and other laboratory parameters.

Objectives of the Study

1. To identify the various causes of fever with thrombocytopenia with special reference to scrub typhus
2. To correlate clinical features and laboratory parameters
3. To assess the complications associated with fever and thrombocytopenia
4. To assess the prognosis of the disease condition.

MATERIALS AND METHODS

The study was conducted on 150 subjects who were admitted to Krishna Rajendra Hospital, Mysuru during June 2014 to Nov 2015. Selection of patients done according to inclusion and exclusion criteria. Details will be entered according to prestructured proforma.

Inclusion Criteria

All patients who were diagnosed with fever with thrombocytopenia, i.e., platelet count less than 1.5 laks at KRH between June 2014 and November 2015 were eligible for inclusion in this study.

Exclusion Criteria

1. Patients with fever with thrombocytopenia other than infective etiology like immune thrombocytopenia, drug-induced thrombocytopenia, hemolysis, elevated liver enzymes and low platelets, myeloproliferative diseases, disseminated intravascular coagulation of non-infective etiology (abruptio placentae, snake bite)
2. Patients with chronic liver disease
3. Patients with autoimmune diseases.

This was a retrospective study analyzing the case sheet records to know various causes of acute fever with thrombocytopenia and how many had complications such as bleeding and multiorgan dysfunction.

Study Design

Retrospective study.

Statistical Methods

Data collected will be analyzed by frequency, percentage, mean, standard deviation, and Chi-square test.

RESULTS

In our study, 150 patients were admitted with acute fever with thrombocytopenia due to various causes. 90 were males and 60 females (Figure 1).

Maximum number of patients were in the age group of 18-24 years followed by 25-34 years group (Figure 2).

Among cases of acute fever, majority were unspecified fever who responded to our clinical judgment and empirical treatment even though they could not be evaluated for confirmation of the diagnosis. Next, it was followed by dengue fever (20 cases NS 1 positive, 5 cases immunoglobulin M [IgM] positive, and 5 cases IgG positive). Moreover, 10 cases with MODS responded well to Doxy therapy. 12 cases of sepsis were having a focus of sepsis and high temperature and high leukocyte count and SIRS features. Among 3 cases of Malaria, 1 was *Plasmodium*

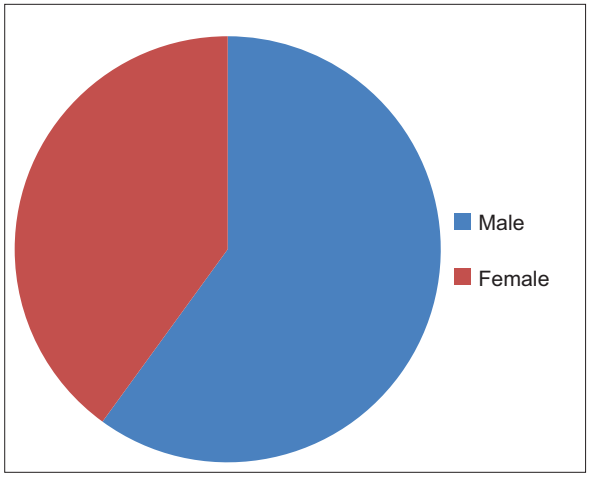

Figure 1: Sex wise distribution

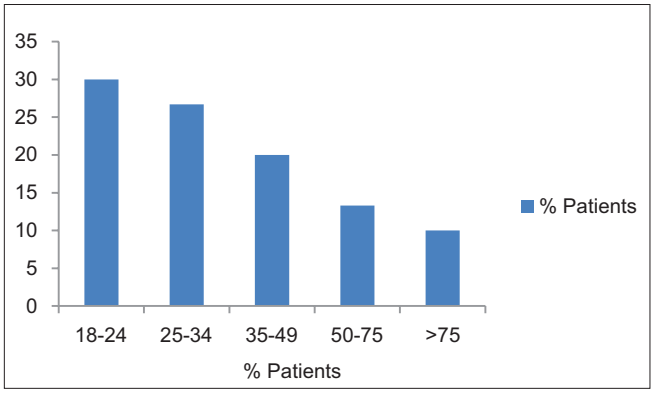

Figure 2: Age wise distribution of patients

vivax positive and 2 others even though smear negative responded to antimalarial therapy (Table 1).

Maximum number of patients had platelet count between 50,000-100,000 (Table 2).

In our study, only 6 patients had bleeding and it occurred only in patients with platelet count <20,000. All were managed successfully with platelet transfusion and other therapy (Table 3).

In our study, mortality occurred in total 7 cases. Out of that three cases with sepsis went into multiorgan dysfunction including acute respiratory distress syndrome, and acute kidney injury. In unspecified fever group, 4 cases who were suspected of having? Leptospira succumbed with MODS (Table 4).

DISCUSSION

Acute fever with thrombocytopenia is a very common problem faced by all physicians day to day in medical wards. When diagnosis is made properly and treated, early results are good, and we can prevent mortality and morbidity. Even though the most common causes are dengue, malaria, leptospirosis, chikungunya, enteric fever, rickettsial fever also should be thought in the evaluation.

Rickettsia diseases are not as uncommon as believed in our population. Only, it needs a high degree of suspicion that too a febrile patient having a rash, thrombocytopenia, and not responding to routine treatment and progressing to MODS. We should evaluate for scrub typhus and treat.

In our study, the majority had unspecified (?viral) fevers (61.4%). The reason for this may be most of our patients are from poor background, and they could not get serology for dengue, chikungunya, leptospira, scrub typhus done from outside laboratory due to financial constraints. However, in this group also 35-40 cases were clinically looking like dengue. Other 20 cases had features suggestive of chikungunya, 10 cases we suspected leptospira (combination of raised bilirubin and raised creatinine), 10 cases malaria (spikes of high fever with chills and rigors), and 6 cases had rash and fever and responded to Doxy so mostly rickettsial.

Remaining cases looked like sepsis with high total leukocyte count but no demonstrable focus of sepsis.

In our study, dengue was the most common as we included IgM, IgG, and NS1 positive cases and those cases in the unspecified group having dengue-like features (Table 5).

Table 1: Causes of acute fever with thrombocytopenia

Diagnosis	Number of patients (%)
Unspecified fever	92 (61.4)
Dengue	30 (20)
Acute fever with MODS who responded to Doxy (?scrub typhus)	10 (6.6)
Sepsis	12 (8)
Malaria	3 (2)
Typhoid	3 (2)

MODS: Multiorgan dysfunction syndrome

Table 2: Number of patients with various levels of thrombocytopenia

Platelet count	Number of cases (%)
<10,000	1 (1.5)
10,000-20,000	16 (24)
20,000-30, 000	10 (15)
30,000-50,000	30 (45)
50,000-75,000	40 (60)
75,000-1,00,000	30 (45)
>1,00,000	23 (34.5)
Total	150

Table 3: Patients showing different type of bleeding manifestations

Type of bleeding	Number of cases	Platelet count
Gum bleeding	1	<10,000
Petechiae	2	10,000-20,000
Hematuria	1	10,000-20,000
Menorrhagia	1	10,000-20,000
Bleeding PR	1	10,000-20,000

Table 4: Outcome

Diagnosis	Total number of cases	Good recovery	Mortality
Unspecified fevers	92	88	4
Dengue	30	30	0
Acute fever with MODS who responded to Doxy (?scrub typhus)	10	10	0
Septicemia	12	9	3
Malaria and typhoid	3	3	0
	3	3	0

MODS: Multiorgan dysfunction syndrome

Table 5: Comparison of causes of fever with thrombocytopenia

Disease	Present study (%)	Nair *et al.* (%)	Patil *et al.* (%)	Dash *et al.* (%)
Dengue	46.6	13.8	15	20
Malaria	8.6	9.2	54	45
Enteric fever	2	14.7	6	10
Others	42.8	62.3	25	25

Comparatively, enteric fevers were less in our study.

As we do not have facility of doing Weil–Felix test, we could not confirm the diagnosis of scrub typhus. However, patients with fever rash thrombocytopenia with MODS, we empirically started Doxy after they failed to other therapy and they responded well. Hence, this group could be rickettsial?

CONCLUSION

Fever with thrombocytopenia is a very common problem. Unspecified fevers were the most common followed by dengue and sepsis and next most probably rickettsial. So, it is necessary to also keep rickettsial diagnosis in mind as we can reduce mortality and morbidity can be reduced with simple DOXY therapy. Further prospective studies are needed to uphold this.

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