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A Study of Laboratory Profile of Fever with Thrombocytopenia

Asmabegaum Biradar[1] and Trupti B. Naik[2]

[1]Department of Microbiology, Al Ameen Medical College, Vijaypur, India.
[2]Department of Microbiology, Subbaiah Institute of Medical Sciences, Shivamogga, India.

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Fever is an elevation of body temperature that exceeds the normal daily variation and occurs in conjunction with an increase in the hypothalamic set point (e.g., from 37°C to 39°C).[1]Fever is a response to cytokines and acute phase proteins and occurs in infections and in noninfectious conditions.[2] The normal platelet count is 150000-450000/mm3. Thrombocytopenia is defined as platelet count less than 150000/mm3.[2] Many viral and bacterial infections result in thrombocytopenia and are the most common noniatrogenic cause of thrombocytopenia. Thrombocytopenia results from one or more of three processes: (1) decreased bone marrow production; (2) sequestration, usually in an enlarged spleen; and/or (3) increased platelet destruction. Disorders of production may be either inherited or acquired. In evaluating a patient with thrombocytopenia, a key step is to review the peripheral blood smear and to first rule out "pseudothrombocytopenia," particularly in a patient without an apparent cause for the thrombocytopenia.[1] The causes for thrombocytopenia are varied and range from idiopathic, infectious to malignancies. Patients with acute febrile illnesses in a tropical country like India usually have an infectious aetiology and may have associated thrombocytopenia. Infections like malaria, dengue and typhoid are some of the common causes of fever with thrombocytopenia. Patients having thrombocytopenia with fever many times do not have bleeding manifestations. Hence study of correlation between platelet counts and hemorrhagic manifestations will help us to know the correct time for infusion of platelets, thus avoiding unnecessary platelet transfusion.[3]

This study aims at studying laboratory profile and finding etiology of fever with thrombocytopenia.

Objectives

a) To assess clinical profile of fever with thrombocytopenia.
b) To describe the etiology of fever with thrombocytopenia.
c) To evaluate the clinical complications associated with fever with thrombocytopenia.

MATERIALS AND METHODS

A prospective study of 200 cases conducted between 30th November to 1st December 2012 on patients admitted in tertiary care hospital of north Karnataka.

Inclusion criteria

a) Adult patients of both sexes.
b) Patients admitted with fever found to have thrombocytopenia

Exclusion criteria

a) Patients with fever and no thrombocytopenia.
b) Patients with thrombocytopenia and no fever.

Patients admitted with fever and found to have thrombocytopenia a detailed history was taken, general physical examination done, detailed examination of various systems was done. Routine and special investigations were done as and when

* To whom all correspondence should be addressed.

required. Investigations included are complete hemogram, platelet count, blood culture, widal test, malaria-thick and thin smear, dengue-NS1 IC card, IgM ELISA, Leptospirosis- IgM ELISA, urine examination and USG abdomen.

RESULTS

Bleeding manifestations were noted in 32(16%) of cases. Anemia was noted in 62(31%) of cases. Platelet transfusion was given to 34(17%) of cases. Blood transfusion was given to 22(11%) of cases. Mortality accounted 19(9.5%) of cases. All were diagnosed with severe sepsis.

Table 1. Age distribution

Age group in years	Numbers	Percentage
13-25	86	43%
26-50	95	47.5%
Above 50	19	9.5%
Total	200	

Male to female ratio was 129:71(1.81)

Table 2. Platelet count

Platelet count	Number of cases	Percentage
<20,000	42	21%
20,000-50,000	69	34.5%
50,000-1,50,000	89	44.5%
Total	200	

Table 3. Types of Malaria by peripheral smear examination

Types of malaria	Number of cases	Percentage(%)
Plasmodium vivax	17	50
Plasmodium falciparum	8	23.52
Mixed	9	26.47
Total	34	

Table 4. Typhoid cases

Type of test done	Number of cases	Percentage(%)
Blood culture	7	29.16
Widal test	17	70.83
Total	24	

Table 5. Dengue

Type of test done	Number of cases	Percentage(%)
NS1 IC card	7	26.92%
IgM mac ELISA	19	73.07%
Total	26	

17(8.5%) cases were positive for IgM ELISA of leptospirosis.

Table 6. Causes of fever with thrombocytopenia

Causes of fever with thrombocytopenia	Number of cases	Percentage (%)
Malaria	34	17
Enteric fever	24	12
Dengue fever	26	13
Leptospirosis	17	8.5
pyelonephritis	6	3
Hyperplastic bone marrow	4	2
Undetermined febrile illness	89	44.5
Total	200	

DISCUSSION

Fever with thrombocytopenia consists of occult presentations of common diseases rather than rare disease. In the present study maximum number of patients were in the age group of 26-50years (47.5%). Males were affected more as compared to females. Where as in study done by rekha *et al*[4] maximum number of patients were in age group of 21-40 yeras and males and females were equally affected. Platelet count below 20000 was noted in 42(21%) of cases and above 50000 in 89(44.5%) of cases, which is comparable to study done by nair *et al*[5] bhalara *et al*[6] and amita *et al*.[7]

Most common cause of fever with thrombocytopenia in our study was malaria34(17%) followed by dengue26(13%), enteric fever24(12%), leptospirosis17(8.5%).

Malaria was most common cause of fever with thrombocytopenia with 34(17%) of cases. Amit *et al*[7], dash *et al*[8], patil *et al*[9] studies also said malaria was common cause in their studies. But according to nair *et al*[5] septicemia was commonest cause. In total 34(17%) cases of malaria 17(8.5%) were of pl.vivax, 8(4%) were of pl. falciparum and 9(4.5%) were mixed infection by both vivax and falciparum. These findings are comparable to study done by amit *et al*.[7] Bleeding manifestations were

noted in 32(16%) of cases. Comparable to patil *et al* study[9] whereas in amit *et al*[7] study 61% nair *et al*[5] 41.3% cases showed bleeding manifestations. 17(8.5%) cases diagnosed as having leptospirosis. Thrombocytopenia is an important contributory factor in the pathogenesis of bleeding diathesis in leptospirosis which is the leading cause of death in this disease. [10]

Mortality accounted for 19(9.5%) cases, all were diagnosed with severe sepsis. Our study is comparable to patil *et al*[9]

CONCLUSION

A total of 101(50.5%) cases were suffering from infectious diseases. Most common cause was malaria 34(17%). A major share 89(44.5%) still remained undiagnosed by the available investigations at our center. Hence there is a need for investigation facilities to cover wider range of microbes in a tertiary care hospital for better management of patients and preventive measures.

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