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Medicine

SPECTRUM OF THROMBOCYTOPENIA AT A TERTIARY CARE CENTRE

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ABSTRACT

Introduction: Thrombocytopenia literally means decreased platelet count. It is defined as a platelet count <1,50,000/μL. Platelets play a major role in hemostasis and it is essential to find the cause of thrombocytopenia and correct it.

Aims & Objectives: To elucidate the causes of thrombocytopenia and their incidence and to study the clinical profile and laboratory parameters in patients with thrombocytopenia. Materials and Methods: A total of 200 patients with thrombocytopenia admitted to Sree Balaji Medical College and Hospital were evaluated. Patients with platelet count <1.5 lakh/mm3 were included in study whereas patients with malignancy thrombocytopenia due to chemotherapy were excluded.

Results: The present study includes patients between 18-70 years of age. The highest incidence of thrombocytopenia was seen in the age group 21-30 years (30%) followed by 18-20 years (24%) and 31-40 years (22%). Diseases causing thrombocytopenia such as megaloblastic anemia and infections (malaria, dengue, enteric fever, and septicemia) were found to be common in the younger population. In our study, the majority of the patients were younger than 40 years.

Conclusion: Major cause of thrombocytopenia was found to be due to dengue fever. Bleeding manifestations were noted in one-third of the population.

KEYWORDS : Thrombocytopenia, Platelet count, Bleeding manifestations, causes of thrombocytopenia, dengue fever.

INTRODUCTION

The normal platelet count ranges from 140,000 to 440,000 platelets per micro liter. Thrombocytopenia is defined as the reduced number of platelets in the circulation. There are various reasons for thrombocytopenia. However, the primary mechanism involves one of the following: 1) Decreased bone marrow production, 2) Abnormal pooling of platelets or, 3) Accelerated platelet destruction. Thrombocytopenia can cause bleeding. When the platelet count falls below about 50,000 platelets per micro liter of blood, bleeding can occur even after relatively minor injury.

MATERIALS AND METHODS

A total of 200 patients with thrombocytopenia admitted at Sree Balaji Medical College and hospital were evaluated.

Criteria for Patient Selection:

1. **Inclusion Criteria:** Patient with platelet count< 1.5 lakh/mm^3(with or without clinical bleeding).

2. **Exclusion Criteria:** Patient having malignancy with thrombocytopenia or due to treatment with cancer chemotherapy is excluded.

A detailed clinical history was taken for each patient. This included a detailed past history, history of tuberculosis, drug history. A detailed history of the bleeding manifestations was also done. To substantiate the clinical history, a thorough physical examination was done. The following investigations were done for all the patients, complete blood count, peripheral smear, coagulation profile, chest X-ray, renal function test, liver function test. Other special investigations such as bone marrow examination, Widal serology, Dengue profile, Coomb's test were done for patients only when indicated.

All the patients were treated according to the disease. The data was noted in separate Proforma for each patient.

RESULTS

This study includes patients between the age group of 18 - 70 years of age. 18-30 years (36%) age group had the maximum incidence of thrombocytopenia followed by 41- 50 years age group (27%) and 51 - 60 years age group (23%) as mentioned in table 1.

In our study, most of the patients with thrombocytopenia were diagnosed with dengue fever(42%) followed by malaria (26%) and then megaloblastic anemia(13%) as mentioned in table no 2.

Table 1: Incidence of thrombocytopenia among the age groups

Age group (in years)	Percentage of patients (no. of patients)
18 – 30	36% (72)
31 – 40	13 % (26)
41 – 50	27 % (53)
51 – 60	23% (46)
61 – 70	1% (3)
TOTAL	100% (200)

Table 2: Etiology of thrombocytopenia

Aetiology	Number of patients (%)
Dengue fever	84 (42%)
Malaria	52 (26%)
Megaloblastic anemia	26 (13%)
Cirrhosis of liver	18 (9%)
HIV	8 (4%)
ITP	4 (2%)
DIC	4 (2%)
Hypersplenism	4 (2%)

Table 3: Incidence of Hemorrhagic manifestations

SITE OF BLEEDING	Total no (%) of patients (n = 119)
Skin and mucosal surfaces (Petechiae, ecchymosis, purpura	46(38.6%)
Epistaxis	27(22.68%)
Melena	18 (15.12%)
Gum bleed	16 (13.44%)
Bleeding per vagina	3 (2.52%)
Hematochezia	4 (3.36%)

Hemoptysis	4 (3.36%)
Intracerebral hemorrhage	1 (0.84%)

Around 119 patients had bleeding manifestations in our study, which roughly accounts to 60% of the study population. Most of the patients who had bleeding manifestations bled into the skin and mucosal surfaces(38.6%) which manifested as petechiae, ecchymoses and purpura. Epistaxis was seen in 27 individuals which amounted to 22.68% of the study group. 18 individuals had bleeding manifestations in the form of melena.

Selective thrombocytopenia was found in 27 patients (13.5%), thrombocytopenia with anemia in 84 patients (42%), thrombocytopenia with leucopenia in 52 (26%) and pancytopenia in 37 (18.5%).

Table 4: Complete blood count in thrombocytopenia

Complete blood count	No: of patients (%)
Selective thrombocytopenia	27 (13.5%)
With anaemia	84 (42%)
With leucopenia	52 (26%)
With pancytopenia	37 (18.5%)
TOTAL	200 (100%)

DISCUSSION

Thrombocytopenia was found to be more common among the younger age group. In our study, almost half of our patients were under the age of 40. Most of the younger individuals had thrombocytopenia. The leading cause among them was found to be tropical diseases like dengue and malaria.

It is essential to rule out pseudo-thrombocytopenia, before considering a patient for thrombocytopenia. Pseudo-thrombocytopenia is secondary to platelet clumping and there are no clinical findings. Platelet clumping in pseudo-thrombocytopenia appears to be caused by anticoagulant-dependent platelet agglutinins that are immunoglobulins (Igs) of IgG, IgA, or IgM subtypes. It is usually confirmed by peripheral smear which shows clumping of platelets. It occurs in one in 1,000 persons in the general population. However, in our study, we did not encounter any pseudo thrombocytopenia. (1)

The younger individuals of our study group had thrombocytopenia due to tropical diseases like dengue, malaria. Another important cause among younger individuals was also megaloblastic anemia. Megaloblastic anemia was also common the cirrhotic. There was no sex predilection for thrombocytopenia in our study population as thrombocytopenia is a laboratory diagnosis. However, with the current outbreak of dengue fever and dengue hemorrhagic fever, malaria they were one of the most leading cause of thrombocytopenia in our study. This was followed by megaloblastic anaemia. The most common cause of megaloblastic anemia was found to be nutritional and was common among the younger age group and the cirrhotic. Anemia was the most common hematological abnormality associated with thrombocytopenia. The most life-threatening complication of thrombocytopenia was intracerebral hemorrhage but encountered in only in 1 patient in our study. In our study, 119 patients out of 200 developed bleeding manifestations and most of them were minor bleeding manifestations like petechiae. However, most patients with bleeding manifestations had a platelet count of <30,000. However, there was no absolute relationship between platelet quantity and bleeding manifestations. (2) The factors causing bleeding due to thrombocytopenia needs to be studied in detail. The correctable causes of thrombocytopenia such as B12 deficiency, thrombocytopenia due to infections should be paid attention to. Thrombocytopenia due to B12 deficiency is a production defect and can be corrected by administering adequate doses of B12 and by supplementing B12 in the diet.

ITP as a cause for thrombocytopenia was found to be 2% in our study. However, the incidence of thrombocytopenia due to ITP was found to be much lesser in another study conducted in England (3). Among various similar studies conducted in India, dengue fever was found to be the most common cause of thrombocytopenia (4,5)

CONCLUSION

The most common cause of thrombocytopenia in our study was dengue fever. This was followed by malaria, megaloblastic anemia and cirrhotics. The other causes were ITP, HIV and DIC. Bleeding manifestations were only found in about 60 % of patients with thrombocytopenia. Predominantly patients were < 40 years of age.

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Abbreviations:
DIC - Disseminated intravascular coagulation
ITP - Immune thrombocytopenic purpura
HIV - Human immunodeficiency virus

REFERENCES
1. Veneri D, Franchini M, Randon F, Nichele I, Pizzolo G, Ambrosetti A. Thrombocytopenias: a clinical point of view. Blood Transfus. 2009;7(2):75–85.
2. Tejas N Modi, Amit D Mehta, A Santosh Sriram. Clinical Profile of Febrile Thrombocytopenia: A Hospital-Based Cross-Sectional Study. J Res Med Den Sci. 2016; 4(2): 115-120 .doi: 10.5455/jrmds.2016428
3. Abrahamson PE, Hall SA, Feudjo-Tepie M, Mitrani-Gold FS, Logie J. The incidence of idiopathic thrombocytopenic purpura among adults: a population-based study and literature review. Eur J Haematol. 2009 Aug;83(2):83-9. DOI:10.1111/j.1600-0609.2009.01247.x. Epub 2009 Feb 23.
4. Shah H. R., et al., Clinical profile review of patients with thrombocytopenia: a study of 100 cases at a tertiary care centre. IJCRR, Vol 7, Issue 6, March 2015.
5. Shruti K Bhalara, Smita Shah, Hansa Goswami, RN Gonsai. Clinical and etiological profile of thrombocytopenia in adults: A tertiary-care hospital-based cross-sectional study. International Journal of Medical Science and Public Health .2015, Vol 4, Issue 1.