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The prevalence, etiology and patterns of thrombocytopenia among geriatric age group

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Abstract

The etiology of thrombocytopenia varies in different populations depending on the age groups, nutritional status, climate and the prevalence of infections. The causes also ranges from transient marrow viral suppression to marrow infiltration by life threatening malignancies. According to etiology, degree and duration of the impairment, clinically thrombocytopenia can lead to petechiae, ecchymosis, epistaxis, menorrhagia, hematuria, gastrointestinal bleeding or intracranial bleeding leading to serious illness and sometimes death. Multiple causes of thrombocytopenia may coexist in a geriatric patient. Thrombocytopenia in geriatrics can co-exist with anemia giving a peripheral picture of bicytopenia. Data for analysis was obtained from patient medical files, in addition to detailed information gathered from patient. Details of history for each case will comprise of age, gender, clinical findings, medical history, and history of medications, general physical examination and laboratory investigation. The most common etiology in our study was Dengue (38%) followed by Malaria (20%), viral fever (15%), Leukaemia (12%), Chemotherapy induced (7%), Drug induced (6%) and ITP (2%).

Keywords: Prevalence, etiology, thrombocytopenia

Introduction

Clinical practice. Among the hematological profiles that changes in non-infectious, infectious and old age diseases, thrombocytopenia is one of the common abnormality. Degree of the thrombocytopenia increases with severity of the disease. The tests like prothrombin time, partial thromboplastin time, fibronectin level are more sensitive but are expensive and time consuming and not suitable for routine purpose. Platelet estimation by automated analyser is rapid and by peripheral smear is further more-cheaper and a bedside procedure, more helpful for geriatric age group patients and can also be used at any set up for routine monitoring^[1].

Thrombocytopenia is not a disease but it is diagnosis. Thrombocytopenia refers to reduction in the number of platelets below 1,50,000/micro L. Most of the time thrombocytopenia can remain clinically asymptomatic. The etiology of thrombocytopenia varies in different populations depending on the age groups, nutritional status, climate and the prevalence of infections^[2]. The causes also ranges from transient marrow viral suppression to marrow infiltration by life threatening malignancies. According to etiology, degree and duration of the impairment, clinically thrombocytopenia can lead to petechiae, ecchymosis, epistaxis, menorrhagia, hematuria, gastrointestinal bleeding or intracranial bleeding leading to serious illness and sometimes death. Multiple causes of thrombocytopenia may coexist in a geriatric patient. Thrombocytopenia in geriatrics can coexist with anemia giving a peripheral picture of bicytopenia. Thrombocytopenia in geriatric malignancies (hematological and non-hematological) can be a consequence of myelotoxicity induced by chemotherapy or less frequently by radiotherapy. In addition, certain malignant conditions are associated with immune mediated thrombocytopenia^[3].

The history, physical examination, results of the complete blood count and review of the peripheral blood smear are all critical components in the initial evaluation of thrombocytopenic patients. Hence this study will be conducted to evaluate the clinicohematological profile and to emphasize on various causes of thrombocytopenia in geriatric age group^[4].

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Methodology

Source of Data: Geriatric patients attending OPD & IPD of Medical College Hospital.

Method: The EDTA blood sample from each case was processed in automated hematology analyzer. At the same time blood smear is prepared and stained by Leishman stain. Peripheral smear examination of the stained smear is done using light microscope and details of the findings will be noted. Where ever possible bone marrow findings was correlated with thrombocytopenia. Data for analysis was obtained from patient medical files, in addition to detailed information gathered from patient. Details of history for each case will comprise of age, gender, clinical findings, Medical history, History of medications, general physical examination and laboratory investigation.

Sample size: 100 geriatric patients diagnosed to have thrombocytopenia were included.

Sampling technique: Convenient sampling.

Statistical analysis: Data will be analyzed by, using SPSS package software version 18 for analysis.

Inclusive criteria

Geriatric age group patients above 60 years of both the sexes with thrombocytopenia on hematology analyzer.

Exclusive criteria

- Pseudothrombocytopenia Cases
- Hematology Analyser errors.
- Technical errors.
- Patients whose age is less than 60yrs.

This study required the venous blood sample from the patients. Written informed consent was taken. Blood will be collected from the patient's ante cubital vein using all aseptic precaution, an ideal blood smear prepared and stained with Leishman's stain and studied using light microscope. Same sample will be processed in the automated analyser for complete blood count.

Results

Table 1: Age wise distribution of patient

Age (Years)	Number of Patients (N=100)	Percentage
60 -65 years	64	64%
65-70years	20	20%
70 to 75 years	10	10%
>75 years	6	6%

The table reveals that 64%% of the patients were between 60-65yrs of age, 20% patients between 65-70yrs, 10% between 70-75yrs, 6% were above 75yrs of age.

Table 2: Gender distribution of patients studied

Gender	Number of Patients (N=100)	Percentage
Male	64	64%
Female	36	36%

As depicted in the above table, thrombocytopenia cases were more predominant in Males i.e.64% and 36% were females.

Table 3: Range of platelet count of patients studied

Platelet count	Number of Patients (N=100)	Percentage
<20,000	12	12%
20,000-50,000	26	26%
50,000-1L	18	18%
1L-1.5L	44	44%

The table and shows that 12 patients (12%) had platelet counts below 20,000.

26 patients (26%) had platelet counts in the range of 20,000-50,000.

18 patients (18%) had platelet counts in the range of 50,000- 1 Lakh.

Majority of the patients 44 patients (44%) had platelet counts in the range of 1-1.5 Lakhs.

Table 4: Degree of thrombocytopenia of patients studied

Degree	Number of patients (N=100)	Percentage
Mild	52	52%
Moderate	36	44%
Severe	12	12%

As depicted in the above table, Mild Degree 52%, Moderate Degree of thrombocytopenia is seen in 36% of patients, and Severe in 12% of patients.

Table 5: Frequency distribution of diagnosis

Diagnosis	Number of Atients (N=100)	Percentage
Dengue	38	38%
Malaria	20	20%
Leukaemia	12	12%
Viral FEVER	15	15%
Chemotherapy	7	7%
Induced		
Drug Induced	6	6%
ITP	2	2%

The table show that the most common etiology in our study was Dengue (38%) followed by Malaria (20%), viral fever (15%), Leukaemia (12%), Chemotherapy induced (7%), Drug induced (6%) and ITP (2%).

Table 6: Frequency of bleeding symptoms of patients

Symptoms and Signs	Number of Cases (N=100)	Percentage
Absent	67	67%
Present	33	33%

- Bleeding manifestations were absent in 67 cases (67%)
- Bleeding manifestations was present in 33 cases (33%)

Table 7: Bleeding manifestations of patients

Symptoms and Signs	Number of Cases (N= 33)	Percentage
Petechiae	22	66.7%
Bruising	3	9%
Bleeding gums	6	18.5%
Epistaxis	1	3.3%
Hematemesis	1	3.3%

- The most common bleeding manifestation is Petechiae (66.7%).
- Bruising were present in 9% and Bleeding gums were present in 18.5% cases.
- Epistaxis and hematemesis were present in 3.3% each of the cases.

Discussion

In our study 60 to 65 years is the most common age group presenting with thrombocytopenia. Which is similar to study

done by DC Lye *et al.* In another study done by Rahul Unnikrishnan *et al.* showed 87% belonged to 60- 70 years age group when compared to our study which showed 84%.

Table 8: Comparative analysis of sex wise distribution of cases

Sl. no	Studies	Males	Females	Male to Female Ratio
1	Rahul Unnikrishnan <i>et al.</i> [5]	58.5%	41.5%	1.4:1
2	DC Lye <i>et al.</i> [6]	36%	54%	1:1.2
3	Present study	64%	36%	1.7:1

From above table shows Male to Female ratio in our study was 1.7:1 which was similar to Rahul Unnikrishnan *et al.*

which was 1.4:1. In contrast to study done by DC Lye *et al.* showed reversal in ratio compared to our study.

Table 9: Comparative analysis of range of platelet count

Platelet count	Dc lye <i>et al.</i> [6]	Rahul Unnikrishnan [5]	Bhalara <i>et al.</i> [8,6]	Present study
1L- 1.5L			31%	44%
50,000- 1L	81%	77%	28.4%	18%
20,000-50,000			23.5%	26%
<20,000	19%	23%	16.3%	12%

In our study patient with platelet count less than 50,000 were 38% above 50,000 were 62%. In a study done by DC Lye *et al.* where patient with platelet count less than 50,000 were 18% and above 50,000 were 82%. In another study

done by Rahul Unnikrishnan *et al.* also had similar results. Our study has similar results with study done by DC Lye *et al.* and Rahul Unnikrishnan.

Table 10: Comparative analysis degree of thrombocytopenia

Degree	Dc lye <i>et al.</i> [6]	Rahul Unnikrishnan [5]	Bhalara <i>et al.</i> [8,6]	Present study
Mild			31.4%	52%
Moderate	81%	77%	52%	36%
Severe	19%	23%	16.6%	12%

In our study Mild Degree Thrombocytopenia (52%), Moderate degree thrombocytopenia (36%) and Severe

(12%). Our study Results were similar to study conducted by DC Lye *et al.* and Rahul Unnikrishnan *et al.*

Table 11: Comparative analysis of frequency distribution of diagnosis

Diagnosis	Tejas <i>et al.</i> [7]	Gandhi <i>et al.</i> [8]	Present study
Dengue	20.7%	26%	38%
Malaria	22.6%	41%	20%
Leukaemia	1.3%	1.8%	12%
Viral Fever	13.2%	16.2%	15%
Chemotherapy Induced	-	-	7%
Drug Induced	-	-	6%
ITP	-	-	2%
Other	32%	15%	-

As shown in the above table the most common etiology in our study was dengue(38%), followed by Malaria (20%), Viral fever (15%), Leukemia(12%) Chemotherapy induced (7%), Drug induced (6%), and ITP (2%). In contrast to other study done by Tejas *et al.*, and Gandhi *et al.* where Malaria was commonest followed by Dengue. Viral Fever and Leukaemia were 3rd and 4th in position, our study also showed similar results in regard to viral fever and Leukaemia

an acute febrile illness due to infective etiology.

- Infections like Dengue, Malaria, are some of the common causes of fever with thrombocytopenia.
- It commonly manifests as symptoms/signs of underlying condition and sometimes with bleeding manifestations.
- Febrile thrombocytopenia is a common condition associated with an increased risk of morbidity and mortality.

Conclusion

- Thrombocytopenia is a commonly observed haematological entity in geriatric age group.
- The causes for thrombocytopenia are varied and range from idiopathic infections to malignancies.
- Majority of the geriatric age group patients present with

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