

A Study of 100 Cases of Thrombocytopenia in Malaria in Swat

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ABSTRACT

Objective: Scheme of this study was to observe the contingency of thrombocytopenia in patients with malaria.

Study Design: Prospective Study

Place and Duration of Study: This study was conducted at the Department of Medicine, Saidu Teaching Hospital, Swat from Jan 2015 to Nov 2016.

Materials and Methods: In the Medical unit of Saidu Teaching Hospital, this study was performed on 100 patients having malaria who were positive for malaria parasite. Platelet count was done at the time of presentation by hematology analyzer.

Results: 16 patients were found to have normal platelet count. 68 patients were having platelet count between 50000-150000 (mild thrombocytopenia). 11 patients were having platelet count between 20000-50000 (moderate thrombocytopenia). 5 patients were having platelet count less than 20000 (severe thrombocytopenia). Male female ratio in this study was almost equal 1.04:1 i.e. 51 males and 49 females. Thrombocytopenia was more common in age group 31-50 years.

Conclusion: Mild to moderate thrombocytopenia is found in malaria. Thrombocytopenia is not diagnostic of malaria but can raise malaria suspicion.

Key Words: Plasmodium, MP, malaria, thrombocytopenia.

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INTRODUCTION

Malaria is a serious, often life-threatening disease which is spread by bite of Anopheles mosquitoes and caused by parasites of the genus Plasmodium.

The incidence of malaria worldwide is about 300-500 million cases per year causing deaths in 20 million affected people annually¹. Annually half a million cases of malaria are reported in Pakistan. The annual mortality rate due to malaria in Pakistan is about 10 percent (Fifty Thousand) of the total affected cases. This result shows that in this country malaria is a major health concern².

Various derangements of hematological parameter are found in Malaria and one of the most common associations is mild to moderate thrombocytopenia but there is a rare association with disseminated intravascular coagulation or hemorrhagic manifestations³.

The association of thrombocytopenia in malaria is not well understood, but some mechanisms have been

described such as sequestration of these cells in spleen, immune-mediated lysis, and abnormal formations of platelets have been implicated. As a consequence of malaria, structural and functional abnormalities in platelets have been explained. In rare conditions, malaria parasite by itself can invade the platelets cells⁴. In patients with the finding of thrombocytopenia, it is important to rule out malaria by careful examination of blood smear. Especially in a febrile patient along with thrombocytopenia, workup to exclude malaria is of immense importance. Travelers' returning from tropical areas with acute febrile illness, presence of thrombocytopenia is considered as a sensitive clinical marker for diagnosis of malaria⁵. These findings are based on studies performed to evaluate thrombocytopenia in patients who were smear positive for malaria.

MATERIALS AND METHODS

From Jan 2015 to Nov 2015, this descriptive study was conducted in Medicine Department of Saidu Teaching Hospital, Saidu Sharif Swat. In this study, a total of 100 patients whom MP was positive were included. Hematology analyzer was used to determine full blood count. Hematologist used Giemsa stain to assess thick and thin smear. Manual method was used for re-evaluation in those patients with decreased platelets count. Three categories were made for patients with thrombocytopenia:

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1. Platelet count 50,000 – 150,000 : Mild thrombocytopenia
2. Platelet count 20,000 – 50,000 : Moderate thrombocytopenia
3. Platelet count less than 20,000 : Severe thrombocytopenia
4. Analyzation of data was performed with SPSS.

Inclusion Criteria: All MP positive patients were included.

Exclusion Criteria: Patients having thrombocytopenia secondary to other causes were not included.

RESULTS

100 patients with positive MP were evaluated from Jan 2015 to Nov 2016. Out of these, male patients were 51 (51%), while female patients comprised 49 (49%) of the total. The ratio of male to female was 1.04: 1, indicating almost equal distribution in both sexes. Fig 1 shows gender distribution.

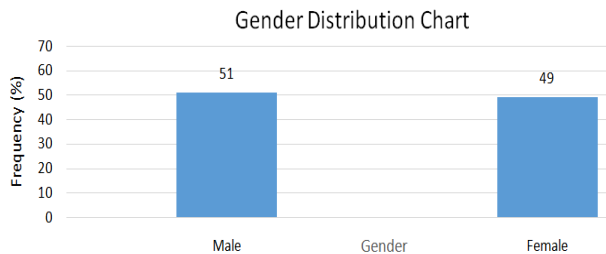


Figure No.1: Ratio of Male to Female: 1.04: 1

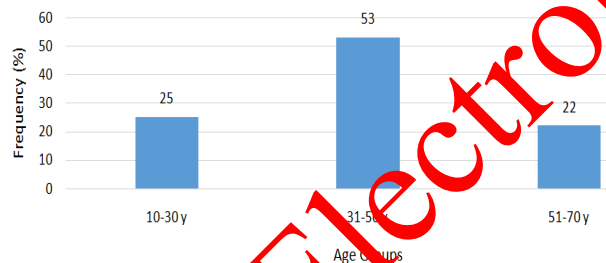


Figure No. 2: Age distribution chart

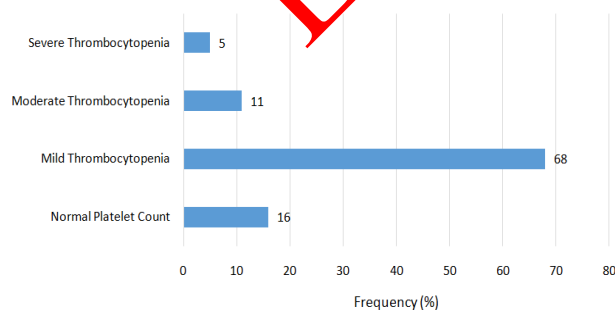


Figure No. 3: Frequency of severity of thrombocytopenia in malaria patients.

Out of these 100 patients, 25 were of age group 10-30 years. 53 belonged to age group 31-50 years, while 22 fell in age group 51-70 years. Fig 2 is showing age distribution.

68 patients had mild thrombocytopenia. 11 patients had moderate while 5 had severe thrombocytopenia. 16 patients had normal platelet count. Fig 3 shows the frequency of severity of thrombocytopenia.

DISCUSSION

In malaria, thrombocytopenia is usually mild to moderate and rarely has any symptoms. Derangement of hematological parameters is common in malaria. Thrombocytopenia is found in 60-80%⁶ of cases while anemia in 25% of cases⁷.

In a patient with acute febrile illness, presence of thrombocytopenia with anemia is essential guide for malaria⁸. In this study, there is some degree of thrombocytopenia in 84% patients. Looking at this figure, it is higher as compare to studies conducted by others, as 71% by Robinson⁹ and 58.97% by Rodrinquez et al¹⁰.

Thrombocytopenia in 53% malaria patients has been reported in Saudi Arabia by Bashwari et al¹¹. Thrombocytopenia with anemia in a patient with acute febrile illness is an important diagnostic clue as also reported by Ladhani et al¹². In Liberia, Mehmood et al¹³ studied 145 MP positive patients. Among these, thrombocytopenia is found in 109 (75.18%) patients. Now this has been agreed upon that thrombocytopenia is very common finding in malaria^{14, 15}. Recent studies from India also suggest strong association of thrombocytopenia with malaria^{16, 17}. Other studies performed in Qatar and Venezuela have also reported thrombocytopenia in malaria^{18, 19}. Studies from Brazil have also found similar results²⁰.

CONCLUSION

In malaria, high frequency of mild to moderate thrombocytopenia has been reported. The combination of thrombocytopenia and anemia in patients with acute febrile illness raises possibility of malaria infection.

Author’s Contribution:

- Concept & Design of Study: Abdul Ahad
- Drafting: Abdul Jabbar
- Data Analysis: Bacha Amin Khan
- Revisiting Critically: Bacha Amin Khan
- Final Approval of version: Abdul Ahad

Conflict of Interest: The study has no conflict of interest to declare by any author.

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