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Research Article

THROMBOCYTOPENIA; PREVALENCE AND SEVERITY AMONG PATIENTS OF MALARIA

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Abstract:**Objective:** To determine frequency of thrombocytopenia and its severity in malaria patients.**Design & duration:** It is a prospective study completed in six months duration.**Setting:** Study was conducted at medical department of FMH Medical and Dental College Lahore.**Patients & methods:** Patients presenting to the study hospital in medical out-door with signs and symptoms of malaria were diagnosed for having malaria by blood smear examination. Those diagnosed with malaria were included in the study and platelet count was tested of all subjects in study group to determine frequency of thrombocytopenia. All data was documented on a predesigned proforma and analyzed using SPSS software version 24. Means, standard deviation, p-value, frequency and percentage were calculated.**Results:** Out of 254 suspected cases, 200 were diagnosed with malaria and included in study group. There were 69% male and 31% female cases. Their age was 15-65 years with mean age of 34.7±8.6 years. There were 135(67.5%) cases with mild disease, 59(29.5%) with moderate and 06(03%) cases with severe disease.**Conclusion:** Thrombocytopenia is much common among patients of malaria and most of the patients suffer from mild disease and recover soon. Significant number of patients have sever thrombocytopenia out of total thrombocytopenic patients.**Key words:** Malaria, thrombocytopenia, Vector, platelets.**Corresponding author:****Dr. Faiqa Nadeem,**

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INTRODUCTION:

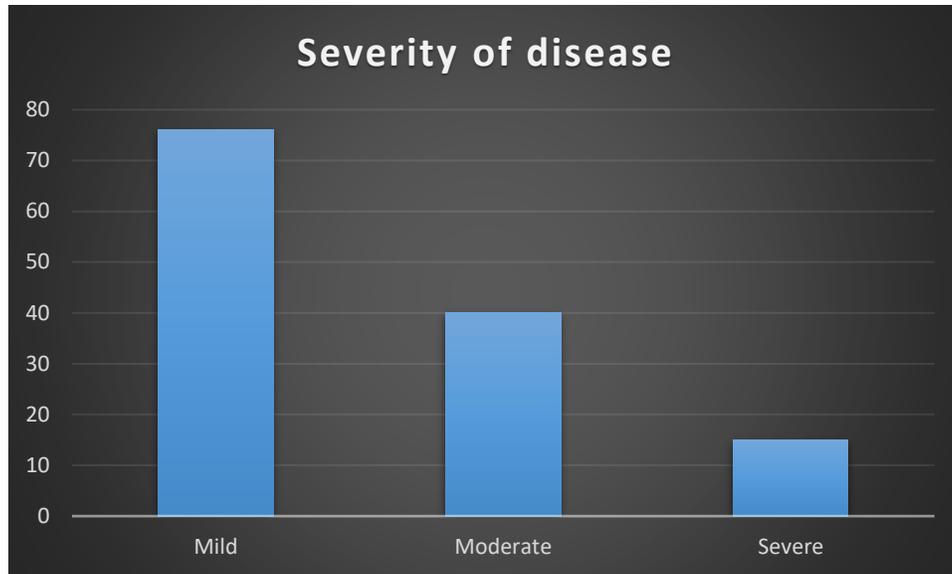
Malaria is a very common infectious disease worldwide affecting millions of people. [1] It has killed hundreds of thousand people in the past in epidemics. Malaria is a vector born disease caused by the bite of the female *Anopheles* mosquito inoculating the sporozoites in the human blood stream leading to clinical manifestations. [2,3] Malaria affects approximately 5% of the world population, being endemic in 103 countries and causes 1-3 million deaths each year. About 270 million people are infected each year. WHO forecasts a 16% growth in annual cases of malaria. Clinically malaria mimics many diseases and there are no absolute diagnostic clinical features. Unfortunately, most of the diagnostic facilities are not available in all areas endemic for malaria. In such settings changes in hematological parameters can be of great help to support. In Pakistan annually half million cases of malaria are reported and 50 thousands deaths occur per year. This is a very high number. It mostly affects infants, children and pregnant women. Its prevalence is less in male population as compared to females. [4-7] There are four species of malarial plasmodium including *falciparum*, *vivax*, *malariae* and *ovale*. *Falciparum* causes very severe disease as compared to other types with increased mortality rate. Thrombocytopenia is a very common complication of malaria mostly occurred by plasmodium *vivax* and plasmodium *falciparum*, reducing platelet count to $150 \times 10^9 /L$. There are three categories of thrombocytopenia mild (platelet count $100-150 \times 10^9 /L$) moderate ($50-99 \times 10^9 /L$) and severe thrombocytopenia with platelet count of $<50 \times 10^9 /L$. Malaria is more prevalent in developing and under developed countries while its prevalence is less in developed countries. Mortality rate depends on health facilities, literacy rate in a community and health professional skills. [8-11]

PATIENTS AND METHODS:

It is a cross sectional study conducted at medical department of FMH Medical and Dental College Lahore. Study was started in January and completed after six months in June 2020. History taken followed by examination and necessary investigations like CBC, RFTs, LFTs, blood smear examination and ultrasound abdomen. Patients presenting to the study hospital in medical out-door with signs and symptoms of malaria were diagnosed for having malaria by blood smear examination. Those diagnosed with malaria were included in the study and platelet count was tested of all subjects in study group to determine frequency of thrombocytopenia. All data was documented on a predesigned proforma and analyzed using SPSS software version 24. Means, standard deviation, p-value, frequency and percentage were calculated. Patients studied were stable not requiring admission and were managed on out-door basis. Patients presenting with signs and symptoms of malaria were tested for malarial parasite and those positive, were included in the study. Demographic information like name, age, address and presenting complaints, positive points on history taking and on examination all were recorded and data was analyzed later.

RESULTS:

Out of 254 suspected cases, 200 were diagnosed with malaria and included in study group. There were 69% male and 31% female cases. Their age was 15-65 years with mean age of 34.7 ± 8.6 years. There were 135(67.5%) cases with mild disease, 59(29.5%) with moderate and 06(03%) cases with severe disease. There were 66(33%) cases between 15-25 years, 52(26%) between 26-35 years, 32(16%) between 36-45 years, 27(13.5%) between 46-55 years and 23(11.5%) between 55-65 years of age. Plasmodium *Vivax* was present in 179(89.5%) and *falciparum* in 21(10.5%) cases. Thrombocytopenia was detected in 115(64.2%) cases with P.*Vivax* and 17(80.9%) cases with P-*Falciparum*.



(Figure-1) Severity of thrombocytopenia among study subjects (N=131/200)

(Table-1) Severity of thrombocytopenia according to type of malarial plasmodium

Type of Plasmodium	Mild	Moderate	severe	p-value
Plasmodium Vivax (n=115)	71	33	11	0.005
Plasmodium Falciparum (n=17)	5	7	4	0.011
Total	76 (58%)	40(30.5%)	15(11.5%)	131

DISCUSSION:

In our study 200 cases diagnosed with malaria were included in the study. There were 69% male and 31% female cases. Their age was 15-65 years with mean age of 34.7 ± 8.6 years. There were 135(67.5%) cases with mild disease, 59(29.5%) with moderate and 06(03%) cases with severe disease. There were 66(33%) cases between 15-25 years, 52(26%) between 26-35 years, 32(16%) between 36-45 years, 27(13.5%) between 46-55 years and 23(11.5%) between 55-65 years of age. Plasmodium Vivax was present in 179(89.5%) and falciparum in 21(10.5%) cases. It is a cross sectional study conducted at medical department of FMH Medical and Dental College Lahore. Study was stated in January and completed after six months in June 2020. History taken followed by examination and necessary investigations like CBC, RFTs, LFTs, blood smear examination and ultrasound abdomen. Malaria is a very common infectious disease worldwide affecting millions of people. [12] It has killed hundreds of thousand people in the past in epidemics. Malaria is a vector born disease caused by the bite of the female Anopheles mosquito inoculating the sporozoites in the human blood stream leading to

clinical manifestations. [13-15] Patients presenting to the study hospital in medical out-door with signs and symptoms of malaria were diagnosed for having malaria by blood smear examination. [16] Those diagnosed with malaria were included in the study and platelet count was tested of all subjects in study group to determine frequency of thrombocytopenia. This study had some limitations. This was single center study with small sample size. This study was conducted in a tertiary care hospital where most of the patients come to the hospital with serious or complicated problems rather for fever or malaria. There are three categories of thrombocytopenia mild (platelet count $100-150 \times 10^9/L$) moderate ($50-99 \times 10^9/L$) and severe thrombocytopenia with platelet count of $<50 \times 10^9/L$. Malaria is more prevalent in developing and under developed countries while its prevalence is less in developed countries. [17-19] Mortality rate depends on health facilities, literacy rate in a community and health professional. Due to poverty and ignorance in our population, most of the time, the problems remain undiagnosed or maltreated. So, the frequency of thrombocytopenia may be higher than observed in our study. In our study, mild

thrombocytopenia was the most common i.e. present in 58% patients followed by moderate thrombocytopenia (30.5%) and severe thrombocytopenia 11.5% patients. However, this distribution was different in other studies. Ansari S, et al, documented that mild, moderate and severe thrombocytopenia was found in 10.5%, 48.6% and 10% patients, respectively. [20,21]

CONCLUSION:

Malaria is a very common infectious disease in our community with plasmodium vivax and falciparum as most prevalent species. Mild disease is common and mostly patients don't need hospitalization and recover by taking treatment from out-patient door. Thrombocytopenia is most complication of malaria which occurs commonly with mild to moderate severity.

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