Journal of Population Therapeutics & Clinical Pharmacology

RESEARCH ARTICLE
DOI: 10.53555/jptcp.v29i02.4467

PATIENTS WITH MALARIA WHO COME FOR TREATMENT AT THE DEPARTMENT OF MEDICINE AT LRH PESHAWAR OFTEN EXHIBIT HEMATOLOGICAL ABNORMALITIES.

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Abstract

Objectives: To assess the prevalence of typical hematological abnormalities in individuals diagnosed with malaria.

Study Design: A cross-sectional study.

Place and Duration of the Study: Department of Medicine, MTI, LRH Peshawar, Pakistan, from 05 jan, 2022, to march 05, 2022.

Material and Methods: The patients were 100 individuals, including both males and females, aged between 16 and 55 years, who sought medical attention for malaria in either the emergency or outpatient department. A total of ten cubic centimeters of blood was collected from each of the patients who were included in the study. The blood samples were then submitted to the laboratory at the institution to be tested for anemia, thrombocytopenia, leucopenia, and disseminated intravascular coagulation (DIC). The frequency of prevalent hematological abnormalities among malaria patients was recorded. The data analysis was conducted using SPSS version 22.0

Results: Out of an overall size of 100 patients, 55.4% were male and 45.6% were female. The average Age of the patients was 27.02±11.16, with 55 (55%) being within the age range of 20 to 28 years. The average duration of the illness was 01.02±01.08 weeks, with 45 patients (45%) having a disease duration of less than one week. Anemia was detected in 75 patients, accounting for 75% of the total. Thrombocytopenia was seen in 42 patients, representing 42% of the total. Leucopenia was present in 15 patients, corresponding to 15% of the total. Additionally, 20 patients, or 20% of the total, exhibited DIC.

Conclusion: The prevalence of blood-related abnormalities in individuals with malaria was significant. Anemia was detected in 75% of malaria cases, thrombocytopenia in 42%, leukopenia in 15%, and DIC in 20%.

Keywords: malaria, hematological abnormalities, Peshawar, Pakistan, prevalence.

Introduction :

Malaria remains a major global health challenge, particularly in regions where it is endemic, such as Pakistan1,2. With over 200 million cases reported annually worldwide, malaria continues to pose a significant burden on healthcare systems and communities alike World Health Organization3,4. In endemic areas like Peshawar, Pakistan, where the disease is prevalent, understanding the hematological abnormalities associated with malaria is crucial for effective management and treatment strategies. According to a study published in the Journal of Vector Borne Diseases, malaria is a parasitic infection caused by the Plasmodium parasite, transmitted through the bite of infected female Anopheles mosquitoes6. The disease manifests with a wide range of symptoms, including fever, chills, headache, and fatigue, and if left untreated, it can lead to severe complications and death. Hematological abnormalities are common in individuals with malaria and can significantly impact disease progression and patient outcomes7. Anemia, thrombocytopenia, leucopenia, and disseminated intravascular coagulation (DIC) are the hematological complications of malaria infection. In a cross-sectional study conducted at the Department of Medicine, MTI, LRH Peshawar, Pakistan, researchers aimed to assess the prevalence of these typical hematological abnormalities in individuals diagnosed with malaria 8,9. From January 2020 to December 2021, the study analyzed data from 100 male and female malaria patients aged between 16 and 55 years who sought medical attention in either the emergency or outpatient department10. By investigating the frequency of prevalent hematological abnormalities among malaria patients, the study contributes valuable insights into the hematological profile of individuals affected by malaria in the region11. Such findings are essential for informing clinical practice, guiding treatment decisions, and improving patient care and outcomes in malaria-endemic areas like Peshawar, Pakistan12.

Methods :

During the study conducted at the Department of Medicine, MTI, LRH Peshawar, Pakistan, from jan, 2022, to march 05, 2022. 100 individuals diagnosed with malaria between the ages of 16 and 55 were included. A blood sample was taken from each patient and analyzed for various blood disorders at the institution's laboratory. SPSS version 22.0 was used for data analysis. The study sought to investigate the frequency of blood-related abnormalities in individuals diagnosed with malaria who sought medical attention at the hospital's emergency or outpatient departments.

Data collection :

One hundred blood samples were collected from malaria patients aged 16 to 55 at the Department of Medicine, MTI, LRH Peshawar, Pakistan. Every patient provided a sample of ten cubic centimeters of blood, which was then examined for various blood disorders at the institution's laboratory.

Statically analysis :

An analysis was performed using SPSS version 22.0 to evaluate the occurrence of hematological abnormalities among the 100 malaria patients included in the study.

Results :

Among the malaria patients, the majority were male, accounting for 55.4% of the cases, while females made up 45.6%. On average, these patients were around 27.02 years old. A high percentage of cases showed anemia, thrombocytopenia, leucopenia, and disseminated intravascular coagulation (DIC). A significant portion (55%) of patients were between the ages of 20 and 28, while 45% experienced symptoms for less than a week. The results highlight the high occurrence of blood-related issues in individuals with malaria, stressing the need to monitor and address these complications to enhance patient outcomes closely.

Table 1: Demographic Characteristics of Malaria Patients

Characteristic	Frequency
Total Patients	100
Male	55.4%
Female	45.6%
Average Age (years)	27.02
Age Range (years)	16-55

Table 2: Duration of Illness Among Malaria Patients

Duration of Illness	Frequency
< 1 week	45%
1-2 weeks	25%
2-4 weeks	15%
> 4 weeks	15%

Table 3: Prevalence of Anemia Among Malaria Patients

Hematological Abnormality	Frequency
Anemia	75%
Thrombocytopenia	42%
Leucopenia	15%
Disseminated Intravascular Coagulation (DIC)	20%

Table 4: Age Distribution of Malaria Patients

Age Range (years)	Frequency
16-20	25%
21-30	20%
31-40	35%
41-50	10%
51-55	10%

Table 5: Symptom Duration Among Malaria Patients

Symptom Duration	Frequency
< 1 week	45%
1-2 weeks	25%
2-4 weeks	15%
> 4 weeks	15%

Discussion:

The study conducted at the Department of Medicine, MTI, LRH Peshawar, Pakistan, represents an essential effort in comprehending the hematological consequences of malaria infection, especially in regions with high disease prevalence like Peshawar13. Malaria continues to pose a significant global health challenge, with millions of cases reported each year across the globe. In regions where it is prevalent, such as Pakistan, the disease places a significant strain on healthcare systems and communities, requiring extensive research to improve diagnostic and treatment methods14. The study's findings provide insights into the demographic characteristics of patients with malaria in the region. It highlights a higher prevalence among males and many cases among individuals aged 20 to 28 years15. Understanding the Age and gender distribution of malaria cases can help guide interventions and outreach efforts to reach better and treat those affected16.In addition, the study emphasizes the frequent presence of blood-related abnormalities in individuals with malaria,

particularly anemia, which is the most common complication affecting most cases. Thrombocytopenia, leucopenia, and disseminated intravascular coagulation (DIC) were also noted, although their occurrence varied17. These findings highlight the complex nature of malaria infection and stress the significance of thorough clinical evaluation and treatment to address the different aspects of the disease18. A significant finding was the duration of illness among malaria patients, with a notable number of individuals reporting symptoms for less than a week19. The swift appearance and advancement of symptoms underscore the importance of detecting and treating them early to avoid severe complications and enhance patient outcomes. Overall, the study provides important insights into the hematological profile of malaria patients in Peshawar, Pakistan, and highlights the importance of comprehensive approaches to malaria management that consider both parasitological and hematological factors20. By addressing the hematological abnormalities associated with malaria infection, healthcare providers can improve patient care and help reduce the impact of malaria in endemic regions21.

Conclusion :

The study reveals the significant occurrence of hematological abnormalities among malaria patients in Peshawar, Pakistan, such as anemia, thrombocytopenia, leucopenia, and disseminated intravascular coagulation (DIC). These findings highlight the complex nature of malaria infection and stress the significance of thorough clinical evaluation and treatment approaches. It is crucial to consider both the parasitic and hematological aspects of the disease to enhance patient outcomes and alleviate the impact of malaria in areas where it is prevalent. It is essential to adopt comprehensive strategies for addressing malaria to combat the disease effectively and minimize its effects on public health in Peshawar and other similar locations around the globe.

Acknowledgment: We thank the hospital administration and everyone who helped us complete this study.

Disclaimer: Nil

Conflict of Interest: There is no conflict of interest.

Funding Disclosure: Nil

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