

A Retrospective Cross Sectional Study on the Hematological impact of Malaria and the significance of various blood parameters in the detection of Malaria

Mahin Shams¹, Mehveen Iqbal², Noor ul Huda Hussain³, Hafsa Zaheer⁴, Saba Pario⁵

ABSTRACT

Objective: To evaluate the significance of hematological parameters in the diagnosis of malaria and estimate the frequency of malaria at a tertiary care center in Karachi, Pakistan.

Study Design: Cross-Sectional study.

Place and Duration: This Study was conducted at the Pathology Laboratory of Creek General Hospital, Karachi from 15th February, 2024 to 31st May, 2024.

Methodology: Data from 293 malaria-positive blood samples, confirmed via rapid diagnostic test, was analyzed. Simple random sampling was used to retrieve data from Laboratory Information Management System (LIMS) after approval of ethical review board, from 1st December 2023 to 15th May 2024. Males and females of all age groups were included, excluding co-infection with dengue and other haemorrhagic fevers. Haematological parameters were obtained from complete blood count reports and Plasmodium was detected on peripheral smears. Statistical analysis was performed using Statistical Package for Social Sciences (SPSS) version 23, with a p-Value <0.05.

Results: Plasmodium was confirmed microscopically in 69.3% cases, with 14.8% Plasmodium falciparum and 40.9% Plasmodium vivax. Plasmodium Falciparum patients had lower red blood cell, white blood cell and platelet counts but higher red cell parameters compared to Plasmodium vivax. Mean lymphocyte count was higher in Plasmodium falciparum. Thrombocytopenia was more frequent in Plasmodium vivax, with lower platelet counts in Plasmodium falciparum. Lymphocyte count and thrombocytopenia correlated with Plasmodium infection ($p < 0.05$).

Conclusion: Plasmodium vivax is more common than Plasmodium falciparum infection. Variations in lymphocyte and platelet counts with different species of Plasmodium can assist in provisional diagnosis, in resource-limited settings.

Keywords: Haematological profile, Malaria, Plasmodium falciparum, Plasmodium vivax, Rapid diagnostic test, Thick and thin smear.

How to Cite This:

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