

## Assessment of Platelets Count and Platelets Indices, Fibrinogen Level and C-Reactive Protein among Sudanese Patients Infected with Malaria in El-Obeid City

Susan Abbass ABRAHIM <sup>1</sup>, Hind Haidar AHMED <sup>2\*</sup>, Ahmed Elhadi ELSADIG <sup>3</sup>,  
Samar Mohammed SAEED <sup>2</sup>, Mugtaba Ahmed ABDELRAZIG <sup>4</sup>, Abuelgasim Abass AWADELKAREEM <sup>4</sup>,  
Tagwa Salah AHMED <sup>5,6</sup>, Ahmed Abdelfattah AHMED <sup>5</sup> & May Mohamed ALI <sup>1</sup>

<sup>1</sup> Hematology and Immunohematology Department, College of Medical Laboratory Sciences,  
Sudan University of Science and Technology, P. O Box 407, Khartoum, Sudan.

<sup>2</sup> Microbiology Department, College of Medical Laboratory Sciences,  
Sudan University of Science and Technology, P. O Box 407, Khartoum, Sudan.

<sup>3</sup> Hematology Department, Faculty of Medical Laboratory Sciences,  
AlzaeimAlazhari University, Khartoum, Sudan.

<sup>4</sup> Department of Histopathology and Cytology, College of Medical Laboratory Science,  
udan University of Science and Technology, P. O Box 407, Khartoum, Sudan.

<sup>5</sup> Department of Parasitology and Medical Entomology, College of Medical Laboratory Science,  
Sudan University of Science and Technology, P. O Box 407, Khartoum, Sudan.

<sup>6</sup> Department of Clinical Laboratory Science, College of Applied Medical Science,  
Jouf University, Saudi Arabia

**SUMMARY.** Malaria is recognized as the most prevalent parasitic disease in holoendemic regions and significantly impacts blood indices, leading to elevated morbidity and mortality rates, especially in Africa. This study aimed to assess platelet profile, fibrinogen level, and C-reactive protein among Sudanese patients infected with malaria in Elobeid City. A case-control study was conducted, enrolling 200 participants; 100 malaria patients identified by Giemsa stained blood films compared to 100 healthy volunteers as control, while platelets count, and platelets indices were measured by Sysmex KX 21N blood count analyzer. Fibrinogen level was measured by functional clotting assay (BioMed-Fibrinogen kite) and C-reactive protein was estimated with a fluorescent Immunoassay I-Chroma™ device, for all study populations. Data collected was analyzed using the SPSS program version 16. Most patients were diagnosed with *Plasmodium falciparum* malaria, 87(78%), while 13 (13%) with *P. vivax* malaria. *P. falciparum* malaria significantly affected PLTs, PWDs, MPV, PCT%, CRP, and fibrinogen (*p*.value = 0.000, 0.001, 0.012, 0.000, 0.000, 0.000) respectively, but did not affect P.LCR (*p*. value = 0.689). Contrarily, *P. vivax* malaria was significantly associated with PLTs, PCT%, CRP, and fibrinogen (*p*. value = 0.000, 0.000, 0.001, 0.000) respectively, and no association with PWD, MPV, and P-LCR (*p*. value = 0.207, 0.802, 0.300), respectively, also a significant association between platelet count and parasitemia level found (*p*. value = 0.000). Malaria significantly decreases platelets count and PCT% while increasing MPV, PDW, fibrinogen levels, and C-RP.

**RESUMEN.** La malaria es reconocida como la enfermedad parasitaria más prevalente en regiones holoendémicas y afecta significativamente los índices sanguíneos, lo que lleva a tasas elevadas de morbilidad y mortalidad, especialmente en África. Este estudio tuvo como objetivo evaluar el perfil plaquetario, el nivel de fibrinógeno y la proteína C reactiva entre pacientes sudaneses infectados con malaria en la ciudad de Elobeid. Se realizó un estudio de casos y controles, en el que participaron 200 participantes; 100 pacientes con malaria identificados mediante frotis de sangre teñidos con Giemsa en comparación con 100 voluntarios sanos como control, mientras que el recuento de plaquetas y los índices plaquetarios se midieron con un analizador de hemograma Sysmex KX 21N. El nivel de fibrinógeno se midió mediante un ensayo de coagulación funcional (BioMed-Fibrinogen kite) y la proteína C reactiva se estimó con un dispositivo de inmunoensayo fluorescente I-Chroma™, para todas las poblaciones del estudio. Los datos recolec-

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\* Author to whom correspondence should be addressed. E-mail: Hindhaidar011@gmail.com

tados fueron analizados utilizando el programa SPSS versión 16. La mayoría de los pacientes fueron diagnosticados con malaria por *Plasmodium falciparum*, 87 (78%), mientras que 13 (13%) con malaria por *P. vivax*. La malaria por *P. falciparum* afectó significativamente a PLTs, PWDs, MPV, PCT%, CRP y fibrinógeno (p. valor = 0.000, 0.001, 0.012, 0.000, 0.000, 0.000) respectivamente, pero no afectó a P-LCR (p. valor = 0.689). Por el contrario, la malaria por *P. vivax* se asoció significativamente con PLT, PCT%, CRP y fibrinógeno (valor p = 0,000, 0,000, 0,001, 0,000) respectivamente, y no hubo asociación con PWD, MPV y P-LCR (valor p = 0,207, 0,802, 0,300), respectivamente, también se encontró una asociación significativa entre el recuento de plaquetas y el nivel de parasitemia (valor p = 0,000). La malaria disminuye significativamente el recuento de plaquetas y el PCT% mientras que aumenta MPV, PDW, los niveles de fibrinógeno y C-RP.

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