

Malaria: inverse relationship between parasitemia and platelet count

Malaria is a life-threatening mosquito-borne infectious disease mainly found in tropical countries. According to WHO, nearly half of the world's population was at risk in 2021, with about 427 million cases and an estimate number of deaths of 619 000 (1). Proper treatment can stop mild cases from becoming severe.



Thrombocytopenia in malaria

Thrombocytopenia is a well-known characteristic of severe malaria (2). In a study by Mandala and co-workers at the Malawi University of Science and Technology, parasitemia levels (number of parasites/ μ L blood) were found to be inversely correlated to platelet (PLT) count (number of cells/L blood) (3). The PLT counts were significantly lower in acute phase for all investigated malaria types— uncomplicated malaria (UCM), severe malarial anemia (SMA) and cerebral malaria (CM)—compared with in the convalescence phase one month after treatment.

PLT extended count

For accurate determination of PLT count in the critically low range, Medonic™ M32 hematology analyzer features an PLT extended counting time functionality. When activated, the analyzer will count three times as many platelets to ensure a sufficiently large number to allow an accurate determination of the PLT count.

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Sample Result		Parameter values		Scales	Graphs
Seq No	347	WBE DE	10.2	3.5	10.5
Date	2018-11-28 14:32	LYM	1.4 14.4 % ▼	0.9	2.9
Profile	Blood	MID	0.6 6.2 %	0.3	0.9
Method	Open Tube	GRA	8.2 ▲ 79.4 %	1.2	8.0
Operator		HGA	11.2 ▼	11.5	16.5
Sample ID 1	30261084	MCH	31.5	25.0	35.0
		MCHC	35.7	31.0	38.0
		RBC	3.57 ▼	3.90	5.72
		MCV	88.0	81.2	98.3
		HCT	31.4 ▼	35.0	55.0
		RDW	13.5 % 62.7	11.8 %	15.6 %
		PLT*	24 ▼	150	450
		MPV		6.5	11.0
		PDW%		0.1 %	99.9 %
		PCT		0.01	9.99
		P-LCR		0.1 %	99.9 %

If PLT extended counting time is enabled and a low PLT is detected during analysis, the extended counting time will be displayed on the counting phase screen, and then indicated by an asterisk (*) adjacent to the PLT parameter on the result screen and in printouts and exported PDFs.

References

1. WHO: Malaria – key facts. www.who.int (accessed 2023-05-22).
2. Maina *et al.* Impact of Plasmodium falciparum infection on haematological parameters in children living in Western Kenya. *Malaria Journal* 9(Suppl 3), S4 (2010).
3. Mandala *et al.* Acute Malaria in Malawian Children and Adults is Characterized by Thrombocytopenia That Normalizes in Convalescence. *Journal of Blood Medicine* 13, 485–494 (2022).



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