

DEFECTIVE ERYTHROPOIETIN PRODUCTION AND RETICULOCYTE RESPONSE IN ACUTE *PLASMODIUM FALCIPARUM* MALARIA-ASSOCIATED ANEMIA

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Abstract. To elucidate the relationship between falciparum malaria-associated anemia and serum erythropoietin (Epo) levels and reticulocyte response during acute malaria infection, 87 adults aged 18-65 years presenting with acute, uncomplicated malaria were examined on enrollment and for 28 days of follow-up. The 87 patients were divided into 2 groups: those with anemia ($n = 45$) and those without ($n = 42$). Serum samples were taken on admission (Day 0), then on Days 7, 21, and 28, to measure the reticulocyte count, absolute reticulocyte count, reticulocyte hemoglobin content, and erythropoietin level (Epo). The absolute reticulocyte counts for the anemic patients were significantly higher than for those without anemia on Days 0, 7, 21, and 28. The serum Epo levels for the anemic patients were significantly higher than the non-anemic group only on Day 0 (44.39 ± 4.06 vs 25.91 ± 4.86 mIU/ml, $p < 0.001$). Inadequate Epo production was found in 31.03% (27/87) of patients on Day 0, 37.93% (33/87) on Day 7, 43.67% (38/87) on Day 21, and 39.08% (34/87) on Day 28. These results indicate defective Epo production and reticulocyte response in adult patients suffering from acute *P. falciparum* malaria, which differs from pediatric patients. Our findings may provide the basis for further study into the choice of therapeutic strategies to treat acute *P. falciparum* malaria-associated anemia with recombinant human Epo to correct refractory anemia due to malaria.

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