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Patients with *P. Falciparum* Shizontemia Need Close Monitoring

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Shizonts of *P. falciparum* malaria have knobs that can cytoadhere to vascular endothelium. The other human malaria species have no cytoadherance. In patients with severe falciparum malaria, parasitized red blood cells sequestering in microvasculature cause vital organ hypoxia and dysfunction. In microcirculation, rupturing shizonts release up to 32 merozoites causing an exponential rise in parasitemia [1,2]. A high shizont count is likely to precede a rise in parasitemia and may be an early marker of severe malaria diseases. Cut-off for hyperparasitemia of WHO Malaria Treatment Guidelines trended to decline since 2006 (2006 Guidelines: ≥ 5% parasitemia in low-transmission areas and ≥ 10% in a high transmission areas *vs* 2010 Guidelines: >2% in low-transmission areas and >5% in a high transmission areas) [3,4]. Tangpukdee et al. [4] showed cut-off of parasitemia ≥ 0.5% was associated with severe malaria in Thailand where was a low transmission area [5].

Predominance of mature parasites forms in peripheral blood smear also reflect a greater sequestered parasite biomass and more severe disease and more fatal outcome [6]. In patients with uncomplicated falciparum malaria, presence of schizontemia showed potential risk to further deterioration to severe malaria [7]. Recent study in Thailand showed shizontemia was found in 39.6% of patients with severe falciparum malaria and it was significantly correlated with parasite density, impaired consciousness, pulmonary edema, hypoglycemia, and hemoglobinuria [8]. Although shizontemia was more frequently seen in patients with high parasitemia, the predictive power showed to be independent of parasitemia; and shizontemia has also high specificity for exclusion of severe disease [5,9].

In areas with low malaria transmission where immunity is poor across all age groups, even a low shizont count is an indicator for close patient observation [1]. Beside absolute parasite density, presence of shizonts on blood smears is a good indicator of more severe infection [9]. Although schizontemia may be associated with poor outcome in falciparum malaria, presence of shizontemia was not currently included in WHO definitions for severe falciparum malaria but was one of poor prognostic indicators of severe disease [10]. Schizontemia may be another laboratory indicator for early detection of other severe malaria diseases, thus close clinical and laboratory monitoring of the falciparum malaria patients with schizontemia is needed. In the settings particularly in low transmission areas where close monitoring is not available, presence of schizontemia in falciparum malaria patients may be relevant to guide selection of parenteral antimalarial treatment.

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