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The Abnormality of Blood Cells Parasitized by Plasmodium vivax

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Abstract : Introduction: Malaria due to Plasmodium vivax has placed huge burdens on the health, longevity, and general prosperity of large sections of the human population. This study aimed at prospectively collecting information on the clinical profile of Plasmodium vivax from subjects acutely infected with P. vivax residing in some of the highest malaria transmission regions in Thailand. Methods: A retrospective study of malaria cases, hospitalized between 2013 and 2015 was performed. Clinical characteristics, diagnosis, and parasitological results on admission, age, and gender were mined from medical records at Phop Phra Hospital located in endemic areas of Tak Province, Thailand. Venous blood samples were collected at the time of admission to the hospital to determine the present of parasite and also parasite count by thick and thin film examination, and also Complete blood count (CBC) parameters. Results: Results showed that patients infected with Plasmodium vivax (276 cases) had a high monocyte count (mean=390 cells/µL) during initial stage of infection and continuously lower during later stage (any stage with gametocyte, mean=230 cells/µL) of infection (P value=0.021) whereas, patients infected with Plasmodium vivax had a low basophil count (mean=20 cells/µL) during initial stage of infection and continuously higher during later stage of infection (mean at stage with gametocyte=70 cells/µL) (P value=0.033). In addition, patients with more than one stage infection tend to have lower lymphocyte count (mean=1180 cells/µL) than patients with only one stage infection (mean=1350 cells/µL)(P value=0.011) whereas, patients with more than one stage infection tend to have lower basophil count (mean=60 cells/µL) than patients with only one stage infection (mean=80 cells/µL) (P value=0.01). Conclusion: This study indicated that patients infected with Plasmodium vivax had high monocyte count and low basophil count during initial stage of infection which was continuously lower during later stage of infection. Patients with more than one stage infection tend to have lower lymphocyte count than patients with only one stage infection whereas, patients with more than one stage infection tend to have lower basophil count than patients with only one stage infection. This information contributes to better understanding of pathological characteristic of Plasmodium vivax infection.

Keywords : plasmodium vivax, Thailand, asexual erythrocytic stages, hematological parameters
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