

A Comparison of Antigen Dipstick Assays with Polymerase Chain Reaction (PCR) Technique and Blood Film Examination in the Rapid Diagnosis of Malaria

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Abstract

Early diagnosis of malaria for military personnel training in the field is crucial in providing proper treatment for the infected and in taking appropriate preventive measures for the non-infected. Present preliminary diagnosis of malaria in the field depends on the clinical symptoms of the patients and there is a need for rapid diagnosis of malaria in the field. The presence of drug-resistant strains of the Plasmodium species in the region also increases the urgency of finding a quick and sensitive way of identifying the different strains. This study evaluated current methods available for the diagnosis of Plasmodium falciparum and Plasmodium vivax. The dipstick assays, the ParaSight™ F test and the OptiMAL malaria rapid test were compared with the methods of microscopic examination of blood film and polymerase chain reaction (PCR). On comparison to the blood film and PCR methods, the ParaSight™ F test has specificity of 98.6% and sensitivity of 91% for P. falciparum detection. The OptiMAL malaria rapid test has a specificity of 100% and 98.6% and sensitivity of 92.8% and 92.6% for P. vivax and P. falciparum detection respectively. We conclude that both tests are suitable for use for rapid malaria diagnosis in the field but the OptiMAL rapid malaria test, which can detect both vivax and falciparum malaria, would be more useful.

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