Ceylon Med J. 2004 Mar;49(1):7-11.

Evaluation of a rapid whole blood immunochromatographic assay for the diagnosis of Plasmodium falciparum and Plasmodium vivax malaria.

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Source

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Abstract

OBJECTIVE:

Microscopic examination of blood smears is the 'gold standard' for malaria diagnosis, but is labour intensive and requires skilled operators. Plasmodium vivax malaria accounts for up to 70% of infections in Sri Lanka. The objective of this study was to determine the effectiveness of an immunochromatographic test which can detect both the species of Plasmodium, P. vivax and P. falciparum, present in Sri Lanka.

DESIGN:

Prospective study from May 2001 to March 2002.

SETTING AND METHODS:

All persons above 5 years of age who presented to the Malaria Research Station, Kataragama or the Anti-malaria Clinic, Kurunegala, with a history of fever were recruited to the study. Thick and thin blood smears were examined for malarial parasites. The rapid diagnostic test (RDT), ICT Malaria P.f/P.v (AMRAD ICT, Australia) was performed simultaneously by an independent investigator. The severity of clinical disease of all patients was evaluated.

RESULTS:

The study sample comprised 328 individuals of whom 126 (38%) were infected, 102 with P. vivax (31.1%) and 24 with P. falciparum (7.3%). The RDT was found to be highly sensitive (100%) and specific (100%) for the diagnosis of P. falciparum when compared with field microscopy. The sensitivity for the diagnosis of P. vivax malaria was only 70%. When P. vivax parasitaemia was greater than 5000 parasites/microL the RDT was 96.2% sensitive. A significant association was noted between the band intensity on the dipstick and both peripheral blood parasitaemia ($p < 0.001$) and clinical severity of disease with P. vivax ($p = 0.011$).

CONCLUSIONS:

The ICT Malaria P.f/P.v test can be used in Sri Lanka in the absence of microscopists.