



Abstract

Objective

Microscopic examination of blood smears still remains the gold standard for malaria diagnosis, but is labour intensive and requires skilled operators. *P. vivax* malaria accounts for upto 70% of infections in Sri Lanka. The objective of this study was to determine the effectiveness of using an immunochromatographic test which can detect both species of *Plasmodium* present in Sri Lanka and to do a cost analysis of the Rapid Diagnostic Test (RDT) as compared to microscopy.

Design, setting and methods

Prospective study conducted from May 2001 to March 2002. All persons above five years of age who presented to the Malaria Research Station, Kataragama or the Anti-malaria Clinic, Kurunegala, with a history of fever were recruited into the study. Thick and thin blood smears were examined for malaria parasites. The rapid diagnostic test (RDT) was performed simultaneously by an independent investigator. The severity of clinical disease of all patients was evaluated. The unit recurrent cost for carrying out the RDT and microscopy for diagnosis of malaria was calculated.

Results

The study population comprised 328 individuals of which 126 (38%) were found to be infected, 102 with *P. vivax* (31.1%) and 24 with *P. falciparum* (7.3%). 202 individuals were negative for malaria. The RDT was found to be highly sensitive (100%) and specific (100%) for diagnosis of *P. falciparum* when compared with field microscopy. The sensitivity for the diagnosis of vivax malaria was only 70%. When *P. vivax*

parasitaemia is greater than 5000 parasites/ μ l the RDT is 96.2% sensitive. A significant association was seen between the band intensity on the dipstick and peripheral blood parasitaemia and clinical severity of disease in *P.vivax* ($p < 0.001$ and $p = 0.011$ respectively). When the unit recurrent costs of the two diagnostic tests are compared the cost of ICT *P.f/P.v* is about 14 times than that of the gold standard, blood film examination.

Conclusions

In a developing country such as ours with an already established laboratory network through out the country, it would be cheaper to use the thick and thin blood film for diagnosis of malaria, provided there are sufficient trained microscopist and prompt laboratory reporting. In areas where microscopy is not readily accessible, as there can be a delay in diagnosis and treatment of cases which contributes to the continuing transmission of disease and the build up of the infectious reservoir the rapid diagnostic test may be used. Using the band intensity as an indication of parasite density and clinical severity of disease in the case of *P.vivax* is rather limited by its subjective nature.