Assessing the Parasight-F test in Northeastern Papua, Indonesia, an area of mixed Plasmodium Falciparum and Plasmodium Vivax transmission


<table>
<thead>
<tr>
<th>RDT product(s):</th>
<th>Parasight-F (Becton Dickinson, Sparks, MD)</th>
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</thead>
<tbody>
<tr>
<td>Target antigens:</td>
<td>P. falciparum HRP-2</td>
</tr>
<tr>
<td>Comparative standard(s):</td>
<td>Microscopy of thick/thin blood films</td>
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<tr>
<td>Trial type: Accuracy / Cost-benefits / public health impact / ease of use / behavioral:</td>
<td>Clinic based assessment of the Parasight-F test during a randomised drug clinical trial/no specific cost benefits considered/low technology and ease of use make the RDT a valuable adjunct/no behavioural changes noted</td>
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</tbody>
</table>

*Usefulness of paper (rated by reviewers): 3

**Major findings/implications:**
- Parasight –F is highly sensitive at day 0 for detection of P. falciparum in this study.
- Antigen persistence after treatment may be equated to higher initial parasitaemia at day 0.
- False positive results with Parasight-F at day 7 limit usefulness for follow up.
- False negative results may reflect low parasite presence.

**Country:** Indonesia

**Trial type**
Assessment of the Parasight-F test during a randomised clinical trial of Chloroquine alone, Doxycycline alone and chloroquine/doxycycline for treating P. vivax or uncomplicated P. falciparum acquired in the town of Jayapura, and rural areas of NE Papua, Indonesia.

152 symptomatic patients enrolled had confirmed P. vivax or P. falciparum infection and were monitored for 28 days using study end points from the WHO 28 day in vivo test. Thick and thin blood films stained with Giemsa stain were examined by ‘standard’ methods. Parasite counts were quantified using measured total white blood cell count or QBC (Becton Dickinson) or assuming 8000 wbc/µL (three comparators that may cause confusion). Parasight-F was performed on days 0, 3, 7, and 28.

No information on training, blinding or performance of the RDT or microscopy are given. No information on Parasight-F RDT ease of use, storage or expiry date is given.

**Results and analysis:**
143 patients had Parasight-F performed and samples had day 0 parasitaemia range of 20-74,432/µL for P. falciparum and 54-14,124 / µL for P. vivax.

Sensitivity of Parasight-F for P. falciparum on day 0, 3 and 7 were 95.2%, 86% and 75% and specificity was 94.9%, 83.1% and 83.7% respectively.

False positive results on day 0 occurred in 3/59 cases (microscopic mis-diagnosis of P vivax), day 3: 14/83, day 7: 17/104 and day 28: 3/54. (no comment on day 14 and 21 results) False negative results (4) at day 0 had low P. falciparum counts (20-175µ/L).

Follow up: Although authors found that positive results for P. falciparum detection decreased with time, on follow up patients it was seen that patients with high counts (median P. falciparum parasitaemia counts >3,904.5
parasites/µL) were likely to remain positive at day 3 and 7, while day 0 median counts of >2,373 were likely to remain positive at day 3 but not at day 7. These proportions did not differ between sensitive and R1 strains. The high specificity for *P. falciparum* (95%) found at day 0 with Parasight-F compares well with other studies but is inconsistent with an earlier study in this region (Fryauff et al). It is suggested that false positive results on day 0 found with *P. vivax* parasitaemia may mask a low infection with *P. falciparum*. Positive results at day 7 did not indicate recrudescence in this study.

Data was analysed (chi-square test for proportional data and Mann-Whitney test for continuous data) using Epi-Info 6.04b. Standard diagnostic test values of sensitivity, specificity are reported.

*Usefulness of paper (rated by reviewers): 3*

* 1. No direct relevance. 2. Very unlikely to influence current practice. 3. Likely to influence current practice in some settings. 4. Likely to influence current practice in many areas. 5. Highly likely to influence current practice in many areas.

Disclaimer:

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