Paracheck positives) would require PCR confirmation. Further training and a stricter selection of technicians could have increased the performance of microscopy in this study and evaluation of the performance of RDTs and where adequate expert performance of microscopy is hard to accomplish, the use of RDTs to determine the prevalence of malaria performed better than microscopy, supporting their use in malaria field based surveys.

Team training

The laboratory technicians trained was composed of five technicians with pre-existing training and previous work experience in public and private health labs. A five day training program was provided by the CISA project. Members received following standard operating procedures, according to the Basic Laboratory Methods in Medical Parasitology manual from WHO. Field workers and microscopists were also trained on how to perform and read Paracheck Pf®.

Samples selection

Preschool aged children and their mothers/caregivers, aged children, 1134 school aged children, 210 school aged children and 540 mixed infections.

Methods

Performance of microscopy and RDTs in the context of a malaria prevalence survey in Angola: A comparison using PCR as the gold standard.

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Abstract

The performance of microscopy and rapid diagnostic tests (RDTs) was evaluated in the context of a malaria prevalence survey conducted in northwestern Angola, in Presence of Chloroquine Resistance (PCR). PCR and microscopy have identified similar prevalence of P. falciparum (15.9%), also close to that identified by Paracheck Pf® (16.6%). However, microscopy had significantly lower sensitivity (68% versus 72.8%), specificity (92.5% versus 94.3%) and PPV (60% versus 70.7%) than Paracheck Pf®. Additionally, the sensitivity of both techniques was amongst lowest compared to (65.8% for microscopy and 66.7% for Paracheck Pf®), when compared with their field and in 5-9 years for Paracheck Pf®.

Using PCR as gold standard, both microscopy and RDTs were associated with unsatisfactory performances. False negativity and positivity were frequent in both techniques, possibly linked with low technical limitations found in field possible data bases, and the level of expertise of microscopists and/or parasitologist antipathy from previous infections (10 RDTs). However, RDTs performed better than microscopy, supporting their use in malaria Field-based surveys.

Figures

Conclusions

- Considering the higher sensitivity, specificity and positive predictive values of RDTs observed, we take data suggest that, for community-based surveys with similar levels of effectiveness and transmission rates, and where adequate expert performance of microscopy is hard to accomplish, the use of RDTs to determine the prevalence of P. falciparum infections is a preferable alternative.
- False negativity detected by microscopy may be associated with the presence of schizonts/merozoites in infected red blood cells by field microscopy and the false positives may be explained by exo-
- negative readings performed by our microscopists, mistraining of test, and distrust and miss artefacts as malaria parasites.
- The use of microscopy as gold standard should be approached with caution as this study would lead to the misclassification of 96 positives and 118 negatives samples and consequently non-
- evaluation of the performances.

In addition to the low cost and practicability of RDTs, the use of rapid microsporidioses (PCR) could also avoid reinfecting home-associated infections such as malaria negativity, related to gene deletions or presence effect, and false negative associated with parasitologist antipathy, extending the feasibility of their use in this context. Neither way leads (either Paracheck Pf® PCR positive) should be referred for PCR confirmation.

References

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