905/A/Poster

Comparison of parasitological and molecular diagnostic methods used for malaria diagnosis in the phase of prevention of reintroduction of malaria in Sri Lanka

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With no indigenous cases of malaria being reported since October 2012, Sri Lanka is now in the prevention of reintroduction phase. We were able to complete 3 consecutive years without local transmission and became eligible for the WHO certification as a malaria-free country. To prevent reintroduction, intensified surveillance becomes the most critical strategy. Each case of malaria needs to be laboratory confirmed which is done by microscopy and rapid diagnostic tests (RDTs). Since microscopy is highly operator-dependent and validity of RDTs also may vary under different field conditions, evaluation of these diagnostic methods becomes very important. This study was carried out to evaluate the two parasitological diagnostic methods using nested PCR.

Blood samples were collected from 186 patients with suspected malaria and 100 high risk asymptomatic individuals. Microscopy, Combo RDT (CareStart™ Malaria HRP2/pLDH {Pf/PAN} which detect pLDH common to genus *Plasmodium* and HRP2 antigen which is present only in *Plasmodium falciparum*) and nested PCR were performed on all samples. Diagnostic indices were calculated considering the nested PCR as the reference.Sensitivity of both microscopy and RDT were 95.35% (95% CI: 88.52-98.72), while specificity of microscopy and RDT were 99 % (95% CI :94.55-99.97) and 94% (95% CI :87.40-97.77), respectively. The positive and negative predictive values of microscopy were 98.80% (95% CI :93.47-99.97) and 96.12% (95% CI :90.35-98.93) while, corresponding values for RDT were 93.18% (95% CI :85.75-97.46) and 95.92 % (95% CI :89.88-98.88), respectively. Among the 100 high risk individuals screened, none were positive by microscopy, RDT or PCR. This study indicates that the parasitological diagnosis methods used in this study are highly sensitive and specific.

Keywords: Malaria, rapid diagnostic tests, microscopy, nested PCR

Acknowledgement: Financial assistance from the National Science Foundation grant no. RG/2014/HS/03.

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