Capacity development, training and research uptake

PO - (8271) - PFHRP2 GENE DELETIONS IN PLASMODIUM FALCIPARUM AND SCHISTOSOMA MANSONI CO-INFECTIONS: AN EMERGING CHALLENGE FOR MALARIA RAPID DIAGNOSTIC TESTS

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**Background:** Malaria and schistosomiasis are infections that have a great impact in Sub Sahara Africa based on their high morbidity and mortality rates. We suggest the possibility that the microenvironment created from interactions between both parasites generates a pressure on the malaria parasite which could in turn favor the parasite’s adaptation or escape through Pfhrp2 gene deletions. Thus, this study aimed at determining the association between the co-infection with both parasites and false negative PfHRP2-based malaria rapid diagnostic tests which occur as a result of these deletions.

**Method:** This pilot study was conducted in a total of 149 children aged 7-17 years living in Yorro, located in the Mbam-Inoubou division of the Center region of Cameroon. We collected fresh stool samples from each participant to identify *Schistosoma mansoni* eggs by Kato Katz method and blood samples to identify the ring stages of *Plasmodium falciparum* by thick smear. Malaria rapid diagnostic and Pfhrp2 gene polymerase chain reaction were performed. The association between the co-infection with *Sm/Pf* and the false negative malaria RDTs was determined by the Fisher’s exact test. A *p* value < 0.05 was considered statistically significant.

**Results:** Our results showed that samples were singly infected with *Sm, Pf*, co-infected (*Sm/Pf*) and negative for both infections at frequencies of 12 %, 43 %, 30.2 % and 14.8% respectively. False negative PfHRP2-based RDTs were observed in 4.7% of the participants. A higher frequency (5/7) of the cases with false negative malaria RDTs were co-infected with *Sm/Pf*. A *p* value of 0.027 showed statistical significance in the association of *Sm/Pf* co-infection and false negative PfHRP2-based RDTs.

**Conclusion:** A significant association of *Plasmodium falciparum* and *Schistosoma mansoni* co-infection with false negative PfHRP2-based RDTs supports the case for a plausible implication in Pfhrp2 gene deletions and consequently in malaria rapid diagnostic testing.