Diagnostics and biomarkers

PO - (8496) - ACCURACY OF DIAGNOSIS AND HEMATOLOGICAL DIFFERENCE AMONG MALARIA PATIENTS IN RURAL AND URBAN AREAS IN THE ASHANTI REGION OF GHANA

Mutala, Abdul-Hakim (Ghana); Badu, Kingsley (Ghana); Tweneboah, Austine (Ghana); Agordzo, Samuel (Ghana); Abbas, Dawood Ackom (Ghana)

1 - Department of Theoretical and Applied Biology, KNUST

**Background:** Over recent years, there has been an increase in the use of histidine rich protein 2 (HRP-2) based rapid diagnostic test in the diagnosis of malaria. Accurate and prompt diagnosis of malaria will help reduce parasite reservoir and reduce malaria transmission. However the under diagnosis of malaria due to the low parasite density hinders malaria eradication. The study aimed at establishing the baseline information on the Accuracy of the HRP2 based RDT used in Ghana while determining the hematological difference among malaria patients.

**Method** Cross-sectional study was conducted from January to April, 2018. A total of 304 participants were recruited in the study. Microscopy and RDT were used in the detection of malaria parasitemia in all the samples.

**Results** The overall sensitivity, specificity, negative predictive value and positive predictive value was 75.9%, 95.6%, 64.7% and 97.4% respectively. The HRP-2 based RDT was highly sensitive (100%) for parasite density ≥ 250 parasite/µl and relatively low for parasite density ≤ 100 parasite/µl (50%-Kumasi, 67%- Agona and 75%- Kuntanase). On the other hand, Agona (rural) recorded the highest prevalence (15.8%) followed by Kumasi (urban) (9%) and Kuntanase (peri-urban) being the lowest (6.8%). The difference in prevalence was however not statistically significant across the three communities. The rural area also accounted for highest parasite density (mean 99.53) and lowest in urban (60.29) with a statistical difference (p<0.001). The difference in white blood cell levels was significant (<0.0001) across Agona, Kuntanase and Kumasi. RBC and Hb levels were however not significant.

**Conclusion** The high specificity observed indicates that majority of the patients without malaria were correctly diagnosed. Notwithstanding, the sensitivity was relatively low and below the WHO standard of ≥ 95% hence significant number of malaria positive cases were misdiagnosed. It is therefore important that the accuracy of RDT should be frequently assessed to improve upon its quality.