Diagnostics and biomarkers

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MULTIPLEXED MOLECULAR DETECTION OF MALARIA IN SIERRA LEONE

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Background

Despite several control measures and policy changes in Africa, malaria remains one of the most prevalent diseases in West Africa. The gold standard for malaria diagnosis is microscopy, however, due to low technical capacities in resource-poor countries, rapid immunochromatographic tests are commonly used. In Sierra Leone, falciparum specific ICT with histidine-rich-proteins²(HRP-2) are used. HRP2 is specific to P.falciparum and the kit cannot be used to detect other species of malaria which are also present in the disease ecology in Sierra Leone.

Methods

In this study, we assessed 182 febrile subjects for malaria between April 2017- July 2018 at the Mercy Hospital Research Laboratory in Sierra Leone. The blood samples collected were assessed using the Walter Reed Army Institute for Research(WRAIR) multiplex malaria PCR kit packaged by BioGX, Inc. (Alabama 35203, USA) for detecting and speciation of malaria from human blood. Thin and thick slides were done for each sample and the images recorded by a digital scope.

Results

Results show that, out of 163 samples run by multiplex PCR for malaria, 81(49.7%) were positive for Plasmodium falciparum, while 82(50.3%) were positive for Plasmodium vivax.

Conclusions

The presence of P. vivax in the disease ecology without any significant difference (P>0.05) with P. falciparum poses problems for clinical outcomes of febrile illnesses. Pan malaria diagnostics in combination with P. falciparum could avert under-diagnosis of malaria.