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Validation of the NovaLisa Kit to detect IgM antibodies of Zika virus in different samples

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Background: Zika virus (ZIKV), +ss RNA virus, is an arthropod borne flavivirus primarily transmitted by *Aedes* mosquitoes. ZIKV was discovered from in a rhesus monkey (Uganda) in 1947. It was an ignored virus but ZIKV emerged suddenly on a large scale in Micronesia (2007) and Polynesia (2013) and caused an epidemic in many South and Central American and Caribbean countries in 2015. The current epidemic is possibly associated temporally and spatially with increased microcephaly and neurological syndrome in affected areas. It has been reported that ZIKV occurred in Dengue virus exposed areas whereby the diagnosis of ZIKV is being complicated due to the chance of cross reactivity. In the current study, we have tried to validate an ELISA to evaluate its sensitivity and specificity against ZIKV IgM antibody

Material/methods: We tested serum samples from dengue IgM and IgG positive patients (n=03, n=07), recently yellow fever vaccinated, malaria positive, CMV IgG positive, RT-PCR ZIKV positive patients (n=09, n=02, n=04, n=16, respectively) along with random negative serum samples (n=09) and ZIKV PCR negative samples (n=13) including children (n=3). Urine samples from 13 ZIKV PCR urine positive patients were also tested. We have conducted evaluation of NovaLisa kit from NOVATEC by following the provided procedure from company.

Results: With NovaLisa kit we found that n=10 of the collected samples were ZIKV IgM positive. Among ZIKV IgM positive samples, n=2 were dengue IgG positive and n=8 were ZIKV RT-PCR positive samples (n= 5 serum and n=3 urine) . None of the other tested samples were ZIKV IgM positive along with the negative controls.

Conclusions: During our evaluation of NovaLisa kit, we did not find any cross reactivity with other viruses and parasites. Detection of ZIKV IgM in two of dengue IgG positive samples may be due to the secondary exposure to Zika virus. Although the kit is for use on human serum or plasma, antibodies can be detected in urine.