REA.03 - Preliminary evaluation of a novel repid test for the diagnostic of chikungunya virus infection

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Introduction:

Chikungunya virus (CHIKV) infection is a severe public health problem, especially in tropical and subtropical countries. Over the past three years, Brazil is experiencing a triple epidemic caused by Dengue, Chikungunya and Zika viruses, in addition, one of the major outbreaks of yellow fever in the last 76 years. These events have changed the way health professionals diagnose and treat infected patients. Clinical diagnosis of these infections is difficult since the signs and symptoms are very similar. Currently, there are several EIA tests, which diagnose these viruses separately. EIA, while efficient, requires a laboratory structure and trained personnel. In this epidemiological situation, the use of a point-of-care (POC) test has a great advantage over EIA. POC tests do not need laboratory structure and can be performed in the field, in places of difficult access and without refrigeration chain. Furthermore, results can be delivered in up to 20 minutes.

Objective:

The aim of this study was to evaluate a rapid immunochromatographic test in a Dual Path Platform® (TR DPP CHIKV IgM/IgG - Chembio, USA) used to investigate, simultaneously, CHIKV-specific IgM and IgG antibodies.

Methodology:

We used 60 CHIKV IgM positive samples and 53 IgG positive samples, from Feira de Santana - BA and 50 negative samples from blood bank. In addition, we tested nine IgM and IgG dengue positive samples and nine IgG and IgM Zika positive samples. All CHIKV positive samples were characterized by testing IgM and IgG antibodies against CHIKV using a commercial EIA, according to manufacturer's instructions (Euroimmun, Germany). Samples from blood bank were also tested against CHIKV IgM and IgG antibodies, using the same commercial test.

Results:

Sixty out of 60 (100%) IgM positive samples were positive on the TR DPP® CHIKV IgM/IgG. Fifty-three out of 53 (100%) IgG positive samples were also positive. Among the negative samples, 49 out of 50 (98%) were negative. None of the IgM and IgG positive samples for dengue and Zika was reagent in the rapid test.

Conclusion:

Our evaluation was a pilot study using a small number of samples; however, the findings show that the TR DPP® CHIKV IgM/IgG has excellent potential for use in the diagnostic of *Chikungunya virus* infection, both active and past. If the chikungunya epidemic in Brazil continues to increase, surveillance and diagnostic laboratories, all over the country, must have a quality rapid diagnostic test available for a prompt reply.

Keywords: Chikungunya; Diagnostic; Rapid Test