Letter to the Editor

Apropos "Outbreak of Chikungunya in the Republic of Congo and the global picture"

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Key words: Chikungunya fever; therapeutic intervention; poorer countries; health-care centers; rapid diagnosis

J Infect Dev Ctries 2011; 5(8):609-610.

(Received 08 July 2011 – Accepted 18 July 2011)

We compliment Professor Kelvin for her assessment of the global profile of Chikungunya virus outbreaks in several continents including up-and-coming therapeutic options [1]. Our intention is to convey the necessity of a rapid point-of-care diagnostic test to identify patients with Chikungunya virus (CHIKV) in the field with a view toward improving CHIKV treatment and prevention.

CHIKV diagnosis is currently made by detecting the virus in samples collected during the early phase of illness by virus isolation in the C6/36 vero cell line or by reverse-transcriptase (RT-PCR). During the later stages of illness, CHIKV antibodies can be detected by an enzyme immunoassay or immunofluorescence assay. Facilities for such investigations and diagnostics are not available at many laboratories not only in remote locations but also in big cities in developing countries [2]. Therefore, rapid, point-of-care tests are needed to diagnose CHIKV in the field and at individual health-care centers to assist clinicians in diagnostics and in choosing a rational therapeutic intervention.

We investigated the usefulness of a point-of-care diagnostic test during the 2010 outbreak of dengue virus (DENV) as well as CHIKV in Delhi, India's capital city. Investigations to diagnose DENV were performed using the combined tests for DENV NS1, IgG and IgG, while sera from 100 suspected cases were tested for CHIKV IgM employing the OnSite Chikungunya IgM Combo Rapid Test kit (CTK Biotech, San Diego, USA). CHIKV tests were performed in the hospital laboratory at the Sant Parmanand Hospital and the results were available within 20 minutes.

Out of 100 patients 14 were positive for CHIKV antibody. Parallel testing of the initial 10 cases was conducted at the National Centre for Disease Control, Delhi, using Chikungunya IgM capture ELISA kits. The sensitivity and specificity of the rapid test in relation to the IgM capture ELISA were 0.71; 95% confidence interval (CI) 0.3-0.94 and specificity of 1.0 ;95% CI 0.46 to 2.1 [3].

The sensitivity of any rapid antibody (IgG or IgM) capture ELISA or RT-PCR could be of limited value during the initial phase of illness as the level of viremia and/or IgM antibody may be below the limits of detection. In Thailand, the rapid test sensitivity and specificity during the first week were 22% and 88%, respectively. However, after one week, the sensitivity increased to 83% and specificity decreased to 71% [4].

Presently the point-of-care test kit is available at a rather high cost; however, the price can be made more affordable if the kit is produced in larger quantities. Such action would make it possible for health centers in poorer countries to use this test as a matter of routine.

Regarding treatment, the use of ribavirin in patients suffering from severe joint pains associated with CHIKV has been encouraging;results have shown faster resolution of joint pain and inflammation in patients treated with ribavirin [5].

In conclusion, CHIKV point-of-care diagnostic tests will help clinicians better manage their patients in the face of global CHIKV dissemination [1]. CHIKV is no longer confined to one region but has emerged as a global public health challenge. Certainly, a point-of-care diagnosis of CHIKV would assist in the selection of patients who might be

eligible for antiviral chemotherapy [5] or for any prospective cytokine linked interventions [6].

References

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Conflict of interests: No conflict of interests is declared.