

Diagnostic Challenges for Common Arboviral Disease in Screening Suspected Dengue Patients Based on Commercially Available Rapid Diagnostic Kits.

Tibutius T.P. Jayadas¹, T. Kumanan², S. Sharanga¹, S.N. Surendran¹

¹Department of Zoology, University of Jaffna, Jaffna.

²Department of Medicine, University of Jaffna, Jaffna.

Dengue virus (DENV), Zika virus (ZIKV) and Chikungunya virus (CHIKV) are arboviruses sharing a common vector and concurrent infections also possible. Sri Lanka faced huge Chikungunya epidemic in the period 2006 – 2007, recorded severe Dengue epidemic in year 2017 and has high risk of Zika outbreak as it has become pandemic. While these diseases present similarly as an acute febrile illness, they have different management strategies and outcomes. Early diagnosis is important for clinical management, surveillance and outbreak control. Here we carried out a pilot study to screen for ZIK and CHIK from dengue suspected patients admitted to the Jaffna Teaching Hospital during the period of October 2017 to October 2018. Blood samples were collected from 312 fever patients from day 1 to 5 who appeared to have Dengue fever and 90 patients were randomly screened for CHIK IgG using ELISA (AccuDiag™, USA.) and 25 atypical dengue suspected patients were screened for ZIK IgM and ZIK IgG with rapid diagnostic kits (Diagnostic Automation INC, USA.). DEN NS1, DEN IgM and DEN IgG assays were performed using rapid diagnostic kits (MP Biomedicals, Germany.). CHIK IgG antibodies were found in 16 patients, in them 1 is positive only for DEN NS1, 2 were positive only for DEN IgM, 3 were positive only for DEN IgG and 5 were positive for both DEN IgM and IgG. Patients who screened for ZIK IgM and IgG, 3 were positive only for ZIK IgG and 2 patients were positive for both ZIK IgM and ZIK IgG. Neither of them positive for DEN NS1 or DEN IgM but 2 Patients were Positive for DEN IgG. 1 patient is positive for CHIK IgG, ZIK IgM, ZIK IgG and Negative for DEN NS1, DEN IgM and DEN IgG. These inconclusive results show the higher possibility of serological cross reactivity in the rapid diagnostic tests. It also gives an alarm for the need of specific tests as Sri Lanka is highly vulnerable for the concurrent transmission of DEN, ZIK and CHIK diseases.

Key words: Dengue, Zika, Chikungunya, Sri Lanka

Acknowledgements: Financial assistance through NSF/RPHS/2016/D02

Proceedings of Jaffna Science Association, Vol 26, No.1, 2019