

Evaluation of commercially available three dengue rapid diagnostic test kits for diagnosis of acute dengue virus infection at the point-of-care setting in Myanmar

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Abstract

Early and accurate diagnosis of dengue virus (DENV) infection is very important and Rapid Diagnostic Test (RDT) Kits are been used as a point-of-care test to check DENV infection. A Hospital and Laboratory-based descriptive study was conducted at 550-bedded Mandalay Children Hospital in 2018. Acute-phase serum samples were collected from 202 dengue suspected patients to evaluate the efficacy of RDT Kits for the diagnosis of DENV infection. Commercially available three test kits which include: ((i) CareUs Dengue Combo, Korea, (ii) Humasis Dengue Combo, Korea and (iii) Wondfo Dengue Combo, China) were validated against WHO-based reference standard tests. 140/202 patients (69.3%) was confirmed to have DENV infection. All four serotypes of dengue viruses (57 DENV-1, 7 DENV-2, 6 DENV-3 and 10 DENV-4) were identified from 80 dengue confirmed patients and DENV-1 was the dominant serotype. Combining the NS-1 antigen and IgM antibody results from the CareUs Dengue Combo Kit gave the best sensitivity (92.1%, 95% CI 86.4%–96.0%) and specificity (75.8%, 95%CI 63.3%–85.8%). Among the three RDT Kits, the performance of CareUS Kit was better than the other two. This study explored the evidence of the usefulness of RDT Kits at the point-of-care setting for diagnosis of acute dengue infection.