

Analysis of Blood Parameters and RT-PCR Results in Dengue Suspected Patients from Kandy and Padaviya

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Dengue Fever is currently considered the most important mosquito-borne viral infection in Sri Lanka with thousands of patients affected each year with a significant social, economic and political impact. Early diagnosis of dengue infection can reduce the numbers of cases of dengue haemorrhagic fever and dengue shock syndrome. Primary diagnosis of dengue is usually based on clinical signs, symptoms and haematological testing. Single-step reverse transcriptase polymerase chain reaction (RT-PCR) offers a sensitive and specific diagnostic procedure for detection and serotyping of dengue virus. Objective of this study was to analyse the blood parameters and RT-PCR results in clinically suspected Dengue patients.

Blood samples were obtained during the first 5 days of the febrile phase, from ninety eight (98) clinically suspected dengue patients who were admitted to Kandy (68) and Padaviya (30) hospitals. Following investigations were carried out at the Department of Biochemistry: RNA extracted from serum samples was subjected to single tube multiplex RT-PCR; haematological parameters included total white cell count (WBC), differential count, platelet count, haemoglobin concentration (Hb), pack cell volume (PCV), clinical chemistry parameters included aspartate transferase (AST) and alanine transferase (ALT) concentrations. Recommended quality control methods were used in all procedures. Data were analysed using Student's t-test.

Out of the 98 blood samples analysed, 42 (43 %) showed positive results with RT-PCR and all positive samples were of DEN-2 serotype (119 bp PCR product). Blood parameters, namely, WBC, platelet count, Hb, PCV, AST and ALT, showed significant differences ($p < 0.05$) between RT-PCR positive and negative samples. Among the parameters ALT level was the most significantly affected in relation to RT-PCR positivity. More than 50 IU/ L of ALT level was observed in 90% of the RT-PCR positive patients. Similar increase of ALT was seen only in 3.6% of the RT-PCR negative patients.

In conclusion, 43% of the samples tested were RT-PCR positive and all positive samples were of DEN-2 serotype. Positive correlation between elevated levels of ALT and RT-PCR positivity would be useful in identifying patients infected with dengue virus and to manage them accordingly.