

Molecular and Haematological Analysis of Dengue Virus-3 Among Children in Lahore, Pakistan

ABSTRACT

Background: Dengue virus (DENV) is an RNA virus belonging to the family Flaviviridae of the genus Flavivirus with worldwide distribution. Dengue fever is caused by any of four closely-related serotypes DENV, an emerging pandemic-prone viral disease in many regions of the world. **Objectives:** The present study aimed to determine the prevalence of dengue virus genotypes and serotypes in children aged below 15 years in Lahore, Pakistan. **Methods:** In this study, 112 serum samples were collected from clinically suspected dengue fever patients from March 2017 to December 2018 at different tertiary care hospitals in Lahore, Pakistan. Regarding the patients' age, the samples were divided into four groups from A to D (i.e., 0 - 1, 1 - 5, 5 - 10, and 10 - 15 years of age). Rapid immuno-chromatography (ICT) test was conducted on the collected serum samples, followed by quantitative RT-PCR for serotype of dengue virus. **Results:** Out of 112 samples, 34 samples were diagnosed as DENV positive by the rapid ICT screening method. No virus was detected in groups A and B, while three samples were positive in group C (1 boy and two girls), and 31 samples (23 boys and 8 girls) were positive in group D. The results of quantitative RT-PCR exclusively showed DEN-3 serotype in all the ICT positive samples. The results indicated that the prevalence of DEN-3 serotype in children was 100%, indicating that DEN-3 serotype might cause severe epidemics in the future in Lahore, Pakistan. Hematological analysis revealed an increase in hematocrits in 41.1% dengue-positive cases. Leucopenia was prominent in 79.4% of the cases, while Thrombocytopenia was reported in 70.5% of the participants. The biochemical analysis also indicated an increase in liver enzymes in patients (ALT 88%, AST 79%), while the lower levels of cholesterol (69 %) and serum albumin (25%) were also observed. **Conclusions:** Dengue virus spreads and grows quickly worldwide over a highly short time interval. Dengue fever claims for a significant number of lives. This study would help individuals know about the status of laboratory parameters in dengue fever and detect how to overcome the prevalence of Dengue virus.