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Polymerase Chain Reaction –based detection of cytomegalovirus infection in Sri Lanka

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The objective of this study was to test two Polymerase Chain Reaction (PCR)-based assays for the early detection and monitoring of cytomegalovirus (CMV) infection in Sri Lanka with a long term objective of identifying the strains of CMV present in Sri Lanka. Eight samples of whole blood received from Sri Jayawardenepura General Hospital, Colombo National Hospital, Kandy General Hospital and Asha Central Hospital, for the detection of CMV, were utilized for this study. Seven of the samples were from transplant recipients. Viral DNA was extracted and analysed by two separate PCR-based assays which detect CMV specific DNA bands of 222 bp (assay A) and 100/150 bp (assay B) by agarose gel electrophoresis. Four of the eight blood samples were found to be positive by both A and B assays. In all the normal DNA controls, two non-specific DNA bands of $\simeq$160 and 450 bp were also observed with assay A. One of the eight samples detected the 222 bp DNA band as a faint band and the DNA bands of 160 and 450 bp. This sample was negative when tested with assay B. Three patients who tested positive for CMV and have undergone anti-viral drug therapy, a second sample was also received 1-2 months after the first sample for monitoring of drug therapy. The second sample was subjected to PCR (assay A) along with a pre therapy DNA sample stored at – 20 °C. A third sample was also received from one patient, two months after the first sample. The 222 bp DNA fragment was detected in all the follow-up samples, however, the intensity of the post-therapy DNA band was very low as compared with the pre-therapy DNA band. Further more, the non-specific DNA bands of 160 and 450 bp were also detected in all these samples clearly indicating that these bands are observed when the primers have little competition from CMV DNA due to either a reduction of the viral load following drug therapy or due to the presence of CMV as a latent infection. Assay A was found to be more sensitive in detecting latent or low viral loads in post-therapy samples than assay B.

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