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Molecular study of *Cytomegalovirus* infection among children with end stage renal diseases undergoing dialysis: Pilot study

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Cytomegalovirus is considered as an opportunistic infection affecting immunocompromised patients. Children with end stage renal diseases requiring dialysis is among affected population by this virus. The aim of the present study was to detect and compare the seroprevalence of CMV and CMV antigen pp65 with real time polymerase chain reaction (PCR) among children with end stage renal diseases undergoing dialysis. The study is a prospective case-control study. 41 patients included in the study were registered in the hospital for regular dialysis waiting for renal transplantation. The study included 41 healthy controls with same age and gender distribution. Blood samples were obtained from studied children and subjected for determination of specific immunoglobulin M and G for CMV (IgM-CMV, IgG-CMV) by Elecys. system and CMV-DNA determination by real time polymerase chain reaction (PCR) and for PP65 antigenemia test by light diagnostic CMVpp65. CMV-IgM was significantly detected frequently (P=0.0001) in 12.2% of the patients and in 2.4% of the control children. Moreover, IgG-CMV was significantly more frequently detected in patients (P=0.0001) than in control (90.2% and 31.7%, respectively). CMV-DNA was significantly (P=0.0001) detected in 12 patients (29.3%) compared to the control (2.4%), while CMV-pp65 was detected among 4 children (9.8%) compared to one child in the control group. The comparison between IgM-CMV and real time PCR revealed that 30.7% of positive samples by PCR had positive IgM-CMV, while IgG-CMV was associated with 84.6% of positive PCR. CMVpp65 correctly identified all negative samples compared to PCR, while the majority of negative PCR was also negative for IgM-CMV (98.6%). Moreover, all negative children for CMVpp65 was also negative by PCR (100%). For the validity of different CMV markers, IgG-CMV was the most sensitive test (84.7%), CMVpp65 was the most specific test (100%). From this study, we concluded that CMV is a common viral infection among children with end stage renal diseases requiring dialysis. The diagnostic performance of real time PCR is the gold standard technique in diagnosis of this infection. CMVpp65 antigenemia is a specific accurate test for laboratory diagnosis however, it lacks sensitivity. Specific IgG for CMV is good screening diagnostic test.

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