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Comparison of real-time PCR to ELISA for the detection of human cytomegalovirus infection in renal transplant patients in the Sudan

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Background: This study was carried out to detect human cytomegalovirus (HCMV) IgG and IgM antibodies using an Enzyme-linked immunosorbent assay (ELISA) in renal transplant patients in Khartoum state, Sudan and to improve the diagnosis of HCMV through the introduction of Real-time Polymerase Chain Reaction (PCR) testing. A total of 98 plasma samples were collected randomly from renal transplant patients at Ibin Sina Hospital and Salma Centre for Transplantation and Haemodialysis during the period from August to September 2006.

Results: Among the 98 renal transplant patients, 65 were males and 33 females. The results revealed that HCMV IgG was present in all patients' plasma 98/98 (100%), while only 6/98 (6.1%) had IgM antibodies in their plasma. HCMV DNA viral loads were detected in 32 patients 32/98 (32.7%) using Real-time PCR.

Conclusions: The HCMV IgG results indicate a high prevalence of past HCMV infection in all tested groups, while the finding of IgM may reflect a recent infection or reactivation. HCMV detection by real-time PCR in the present study indicated a high prevalence among renal transplant patients in Khartoum. In conclusion, the prevalence of HCMV in Khartoum State was documented through detection of HCMV-specific antibodies. Further study using various diagnostic methods should be considered to determine the prevalence of HCMV disease at the national level.

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