

Cytomegalovirus Infection and Risk of New-Onset Diabetes after Transplantation: A Retrospective Study

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Background: NODAT is a frequent complication among kidney transplant recipients and is considerably associated with risk of allograft rejection and allograft loss. The present research study was aimed to identify whether CMV infection acts as risk factor for NODAT development in kidney transplant recipients. **Methods:** This retrospective study recruited 59 kidney transplant recipients (43 males and 16 females). The diagnosis of NODAT was established if two fasting plasma glucose readings were ≥ 126 mg/dL after the 3rd month of post-transplantation. We carefully monitored recipients for CMV viremia (CMV DNA copies/mL) in the plasma through quantitative Polymerase Chain Reaction (qPCR). The 1 year post-transplantation allograft outcomes due to CMV viremia were also measured; eGFR (CKD-EPI method), allograft and transplant patient survival.

Results: In this study, 14 (23.7%) patients were diagnosed with NODAT. The CMV load and CMV viremia was elevated in NODAT cohort in comparison with their counterparts (4000 versus 3600 and 51.1 versus 47.6, respectively); however, no statistical relationship was observed ($P = 0.79$ and $P = 0.84$, respectively). We witnessed significantly high CMV DNA replication in first (1-6 months) half of the post-transplant period in both controls and NODAT patients; however, statistically significant CMV DNA replication was only observed for NODAT cohort ($P < 0.001$). Majority of the NODAT diagnoses; 9 out of 14 (64.3%), in our cohort was made during the first six months of kidney transplantation ($P < 0.001$). Overall, 7 (11.9%) of the kidney transplant recipients recruited in our study progressed to symptomatic CMV infection. We also witnessed that a greater CMV viremia load was worsening the kidney allograft function at 12 months post-transplantation. The allograft and patient survival (censored for death) was poor in the NODAT cohort; however, without any statistical significance.

Conclusions: The present study demonstrated that CMV infection is not a risk factor for NODAT development among kidney transplant recipients.

Keywords: New-Onset Diabetes after Transplantation (NODAT); Cytomegalovirus (CMV) Infection; Kidney Transplantation