

TITLE: KIDNEY TRANSPLANT PATIENTS PRESENTING BKV REPLICATION ARE SIGNIFICANTLY PREDISPOSED TO GRAFT LOSS

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ABSTRACT:

The BK virus (BKV) develops a persistent subclinical kidney infection in immunocompetent individuals. However, viremia may reach up to 30-40% of kidney transplant patients with ongoing immunosuppression, possibly causing BKV-associated nephropathy (BKVN), which has no specific treatment and is a leading cause of organ transplant loss. In this study, we aimed to evaluate the predisposition and the clinical impact of BKV replication in kidney transplant patients during post-transplant monitoring in a reference institution in Brazil. Demographic, clinical and laboratory data generated during routine outpatient follow-up were retrospectively collected. BK viremia was investigated using real-time polymerase chain reaction. The established inclusion criteria led to the enrollment of 553 (78.8%) kidney transplant recipients, including 359 men (41.4 ± 13.2 years old) and 194 women (41.3 ± 13.3 years old). Forty-one (7.4%) participants presented BKV replication. Of these, 16 (39%) lost their kidney graft and interstitial nephritis was identified on kidney biopsy in 50% of the cases. Among the evaluated variables, only the use of the immunosuppressant mycophenolate sodium was identified as a risk factor for viremia (OR 7.96; 95% CI 2.35 to 26.98). The other variables studied were not significant with regard to risk, including the male gender ($P=0.24$), deceased donor ($P=0.14$), immediate post-transplant kidney function ($P=0.24$) and the use of the immunosuppressant tacrolimus (TAC; $P=0.53$). The graft survival estimate in BKV-positive patients was significantly reduced (24.8% vs. 85.6%) after 10 years of transplantation. We concluded that defining predisposing factors remains an important challenge for the prevention and control of BKV activity following kidney transplantation, especially considering the development of BKVN and its strong effect on graft maintenance.

Keywords: BK virus, nephropathy, renal transplantation, viremia.

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