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LETTER TO THE EDITORS

# A cautionary tale of BK virus

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Dear Sirs,

Solid organ transplant recipients require lifelong immunosuppressive therapy to prevent rejection of their graft. However, this relatively nonspecific immunosuppression leaves the patient vulnerable to viral infections. BK virus (BKV) has become a common infection, which can lead to an inflammatory process in the kidney and may lead to graft loss. At this point in time, the only treatment for BKV is the reduction in immunosuppression. BKV is estimated to have a seroprevalence rate of around 75% in the adult population worldwide, while potentially exceeding 90% [1,2]. In most cases, the virus remains latent in urinary epithelium and poses no threat to the individual [3]. However, if a patient develops BK viremia, most transplant centers reduce immunosuppression to prevent occurrence of frank nephropathy. Some investigators have posted that BK viremia may in fact serve as a crude marker of T cell immune competence [4]. Given this, it is quite possible that complete resolution of viremia may increase vulnerability to alloimmune responses. As the development of donor-specific HLA antibodies has been shown to be a major cause of graft loss, the question of whether the decrease in immunosuppression obligated to eradicate BKV may lead to an increased risk of donor-specific antibodies (DSA).

Our center retrospectively reviewed 248 charts of kidney and kidney–pancreas transplant recipients to observe the incidence of BKV, and of the patients who developed BKV, which ones developed DSA. The incidence of BK viremia at our center was found to be 14.1% ($n$ = 35). All patients were treated with cessation of their anti metabolite and kept on dual therapy of tacrolimus and prednisone, with tacrolimus trough levels targeted at 4–8 ng/ml. Upon review of the patients with BK viremia, three patients developed de novo DSA with a BK viral load of less than 2000 copies that we will define as not persistent BK viremia. De novo DSA was not found in patients with persistent BK viremia of more than 2000 copies. No patients had pretransplant DSA and all developed DSA only after the BK viral load fell to less than 2000 copies; thus, 3 of 35 patients developed DSA within a year period. The incidence of de novo DSA in negative BK patients is 16 of 213 patients (7.5%). The number of patients in our study is not large, but it does support the concept that BKV may indeed be a biomarker for immune suppression. However, it also underscores the need for constant vigilance in this delicate balance. It may be possible that eradication of virus may not be ideal, but rather low levels may be a more appropriate goal. In any case, these cases offer a cautionary message regarding the need to study this issue in powered and randomized studies.

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