BK Virus Nephropathy in a Center Performing Mainly Living Kidney Transplantation

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OBJECTIVES

BK virus (BKV) is an emerging problem in kidney transplantation. However, most of the data on BKV is derived from centers which perform cadaveric donor transplantation. In this study, we evaluated the frequency and associated factors of BKV infection in a center performing mainly living donor transplantation.

METHODS

One hundred renal transplant patients operated after June 2006 and still followed up at our Transplantation Unit were included in the study. Quarterly visits were planned to examine urine for decoy cells and to measure the BKV DNA in blood and urine. Patient records were examined for acute rejection, delayed graft function and biopsy. Serological examinations for BKV IgG were performed in donors.

RESULTS

Table 1: Demographical and laboratory findings of the patients.

n=100	
Age (years)	38.1±11.6
Sex (men, %)	55
Transplant time (months)	25.7±15.6
Donor type (cadaveric,%)	19
RRT time (months)	36.9±33.9
Creatinine (mg/dL) (final follow-up)	1.44±1.0
Creatinine clearance (mL/min/1.73 m²) (last visit)	68.0±26.0
Proteinuria (mg/day) (last visit)	480±1307.8

Renal transplant recipients were young or middle-aged (median: 35, range: 20 to 65 years old) subjects. Most of them were men and had transplants from living donors (81%). Demographical and laboratory characteristics of the patients are shown in Table 1. During the entire follow-up period, viruria rate was 12%, viremia rate was 6% and positivity of decoy cells was 13%. Negative and positive predictive values of decoy cells for viruria was 93% and 69%, respectively. The negative and positive predictive values of decoy cells for viremia was 99.2% and 45.5%, respectively. Comparison of the demographic, laboratory and clinical characteristics of viruria or viremia positive and negative renal recipients are shown in Table 2. BKV IgG was positive in all living donors. The treatment regimen changed in four patients in which the BKV DNA > 10^7 copies/ml in urine. Viremia and viruria disappeared completely in the follow-up of three patients and decreased in one. Graft loss due to BKV nephropathy was not observed in any patient; however, one patient treated with leflunomide had graft loss due to recurrent glomerulonephritis.

Table 2: Characteristics of the viremia positive and negative renal recipients.

	Viremia (+)	Viremia (-)	P
Viruria (+) (%)	50	9.6	0.022
Age (years)	47.5±17.1	37.5±11.0	0.157
Sex (men, %)	66.7	54.3	0.688
Transplant time (months)	9.5±4.2	26.8±15.5	0.01
Donor type (cadaveric, %)	66.7	16.0	0.011
Donor CMV IgG (+) (%)	100	94.8	1.000
Recipient CMV IgG (+) (%)	100	96.6	1.000
RRT time (months)	59.9±61.0	35.4±31.5	0.642
DGF (%)	16.7	16.0	1.000
HLA missmatch	2.7±0.6	2.8±1.3	0.831
Acute rejection (%)	100	8.5	0.000
Pulse steroid use (%)	50	7.4	0.013
ATG use (%)	83.3	22.3	0.004
Creatinine (mg/dL)	1.3±0.4	1.4±1.1	0.977
Tacrolimus use (%)	83.3	83.0	1.000
Cyclosporine use (%)	16.7	12.7	0.576
MMF use (%)	16.7	16.0	1.000
MPS use (%)	50.0	67.0	0.406
Simulect use (%)	33.3	45.7	0.688

CONCLUSIONS

The frequency of BKV infection was lower in our transplant unit. Reduced doses of immunosuppression seems to be the main factor that may explain the decreased frequency. However, an active strategy in screening is still of importance for this patient group.

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