COMPARISON OF ALEMTUZUMAB AND ANTI-THYMOCYTE GLOBULIN TREATMENT FOR ACUTE KIDNEY ALLOGRAFT REJECTION

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Introduction: Rabbit anti-thymocyte globulin (rATG) is currently the treatment of choice for glucocorticoid-resistant, recurrent or severe acute allograft rejection (AR). However, rATG is associated with severe infusion-related side effects. Alemtuzumab is incidentally given to kidney transplant recipients as treatment for AR. In the current study, the outcomes of patients treated with alemtuzumab for AR were compared with that of patients treated with rATG for AR.

Methods: The patient-, allograft-, and infection-free survival and adverse events of 116 alemtuzumab-treated patients were compared with those of 108 patients treated with rATG for AR Propensity scores were used to control for differences between the two groups.

Results: Patient- and allograft survival of patients treated with alemtuzumab or rATG were not different (hazard ratio [HR] 1.14, 95%-confidence interval [CI] 0.48-2.69, p=0.77, and HR 0.82, 95%-CI 0.45-1.5, p=0.52, respectively). Infection-free survival after alemtuzumab treatment was superior compared with that of rATG-treated patients (HR 0.41, 95%-CI 0.25-0.68, p=0.002). Infusion-related adverse events occurred less frequently after alemtuzumab treatment and the median length of hospitalization of alemtuzumab-treated patients was 12 days shorter (p<0.001).

Conclusion: Alemtuzumab therapy may be an alternative therapy for glucocorticoid-resistant, recurrent or severe acute kidney transplant rejection. The advantages of alemtuzumab over rATG are fewer infusion-related side effects, fewer infections, and a shorter hospital stay.

URINE DONOR DERIVED CELL FREE DNA AIDS IN THE DIAGNOSIS OF BK POLYOMAVIRUS NEPHROPATHY IN KIDNEY TRANSPLANT RECIPIENTS WITH BK VIRURIA

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Objective: BK Polyomavirus nephropathy (BKVN) and rejection are important cause of dysfunction and failure of renal transplants. Donor-derived cell-free DNA (dd-cfDNA) in the urine and blood had been demonstrated to be useful indicator for renal allograft organ injury. This study was designed to assess the value of dd-cfDNA for differentiating between BKVN and rejection.

Materials and methods: Donor-derived cell-free DNA was assayed both in urine and blood from 38 patients. Twenty cases met criteria for definitive BKVN. Seven cases were isolated BKV viruria. Seven cases met criteria for resolving BKVN. Twenty cases met criteria for T cell mediated rejection (TCMR). Dd-cfDNA quantification was performed through Target Region Capture Sequencing and reads were calculated by Maximum Likelihood Estimation (MLE).

Results: The mean level of absolute quantification of urine dd-cfDNA in definitive BKVN group (29.8 ng/ml) was higher than in isolated BKV viruria group (3.9 ng/ml, P=0.005), resolving BKVN group (6.8 ng/ml, P=0.039), and TCMR group (19.4 ng/ml, P=0.040). The mean level of urine dd-cfDNA in definitive BKVN group (29.8 ng/ml) was similar with that in isolated BKV viruria group (6.8 ng/ml, P=0.039). The mean level of plasma BKV loads in definitive BKVN group (1.1×10^4 copies/ml) is higher than in isolated BKV viruria group (0 copies/ml, P=0.006), resolving BKVN group (0 copies/ml, P=0.012). The mean level of serum creatinine level in definitive BKVN group (226.7 μmol/L) is higher than in isolated BKV viruria group (100.0 μmol/L, P=0.030), but was similar with resolving BKVN group (204.8 μmol/L, P=0.660) and TCMR group (181.3 μmol/L, P=0.260).
Conclusion: The absolute quantification level of urine dd-cfDNA may help diagnose BKVN and differentiate BKVN from rejection.

Key words: Biomarker; kidney transplantation; BK virus; infection; Polyomavirus nephropathy; TCMR

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KIDNEY TRANSPLANTATION FROM HBsAG+ LIVING DONORS TO HBsAG- RECIPIENTS: CLINICAL OUTCOMES AT A HIGH- VOLUME CENTER IN CHINA

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Background: Data on kidney transplantation (KTx) from hepatitis B surface antigen (HBsAg)+ donors to HBsAg- recipients [D(HBsAg+)/R(HBsAg-)] are limited. We aimed to report the outcomes of D(HBsAg+)/R(HBsAg-) KTx in recipients with or without hepatitis B surface antibody (HBsAb).

Methods: Eighty-three D(HBsAg+)/R(HBsAg-) living KTx cases were retrospectively identified. The 384 cases of KTx from hepatitis B core antibody (HBcAb)+ living donors to HBcAb- recipients [D(HBcAb+)/R(HBcAb-)] were used as the control group. Primary endpoint was post-transplant HBsAg-→+.

Results: Before KTx, 24 donors (28.9%) in the D(HBsAg+)/R(HBsAg-) group were hepatitis B virus (HBV) DNA+, and 20 recipients were HBsAb-. All eighty-three D(HBsAg+)/R(HBsAg-) recipients received HBV prophylaxis, while no D(HBcAb+)/R(HBcAb-) recipients received prophylaxis. After a median follow-up of 36 months (range 6-106) and 36 months (range 4-107) for the D(HBsAg+)/R(HBsAg-) and D(HBcAb+)/R(HBcAb-) groups, respectively, 2/83 (2.41%) D(HBsAg+)/R(HBsAg-) recipients became HBsAg+, accompanied with HBV DNA+ (P=0.083). The three recipients with HBsAg-→+ were exclusively HBsAb-/HBcAb- before KTx. Recipient deaths were more frequent in the D(HBsAg+)/R(HBsAg-) group (6.02% vs. 1.04%, P=0.011), while liver and graft function, rejection, infection, and graft loss were not significantly different. In univariate analyses, pre-transplant HBsAb-/HBcAb- combination in the D(HBsAg+)/R(HBsAg-) recipients carried a significantly higher risk of HBsAg-→+, HBV DNA-→+, and death.

Conclusions: Living D(HBsAg+)/R(HBsAg-) KTx in HBsAb+ recipients provides excellent graft and patient survivals without HBV transmission. HBV transmission risks should be more balanced with respect to benefits of D(HBsAg+)/R(HBsAg-) KTx in HBsAb-/HBcAb- candidates.

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