

Abstract Submission No.: A-1014

HLA-incompatible Kidney Transplantation Showed Similar Outcomes Compared To HLA-compatible Kidney Transplantation After An Early Rejection

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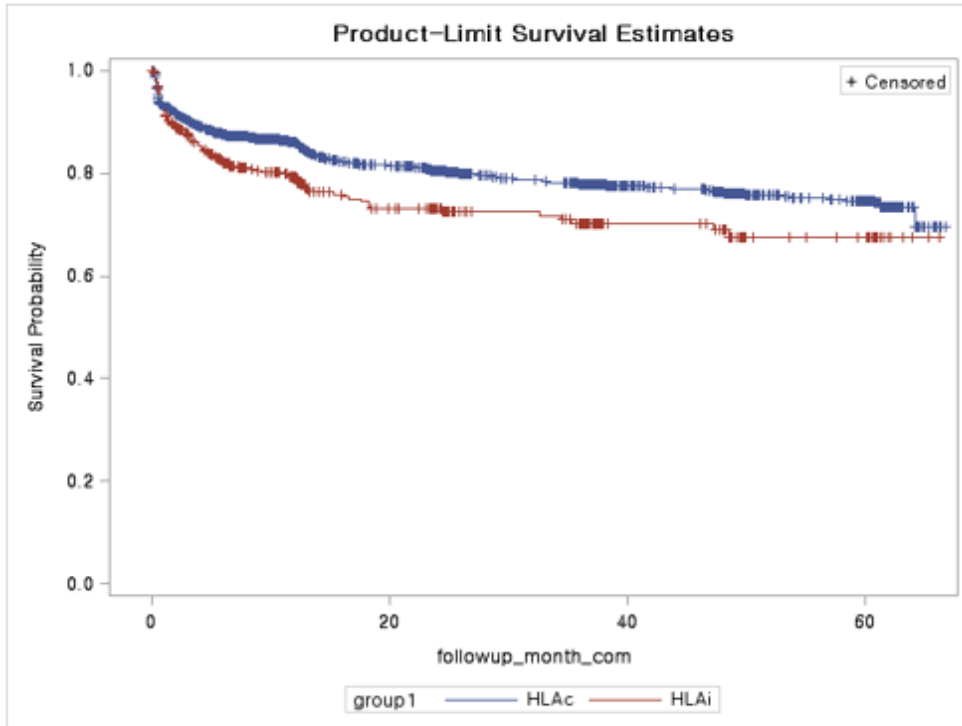
Objectives : HLA-incompatible (HLA-i) kidney transplantation (KT) constitutes a high-risk group with an increased risk of rejection and graft failure. We investigated the differences in short- and long-term outcomes of HLA-i KT compared to HLA-compatible (HLA-c) KT.

Methods : Patients with living donor KT were enrolled from a prospective nationwide cohort in Korea. HLA-i KT was defined as a desensitized transplantation with complement-dependent cytotoxicity (CDC) or flow-cytometric (FCM) crossmatch positivity. The primary outcome was a composite of acute rejection, graft failure, and patient death. The association between acute rejection and HLA types was analyzed. Tacrolimus trough levels were compared between HLA-i and HLA-c KT groups.

Results : A total of 3692 KT recipients were enrolled and 466 (12.6%) patients received HLA-i KT. Kaplan-Meier curve revealed that HLA-i KT showed higher acute rejection, graft failure, and the composite than HLA-c KT (all $P < 0.05$). The HLA-i group is associated with a higher risk of the composite (adjusted hazard ratio [aHR] 1.57; 95% confidence interval [CI] 1.34-1.79; $P < 0.001$) and acute rejection (aHR 1.56; 95% CI 1.37-2.88; $P < 0.001$) than the HLA-c group during the 1st year after KT. However, 1 year after KT, all the transplant outcomes did not differ between the two groups. Logistic regression analysis showed that antibodies against HLA-DR were significantly associated with an increased risk of acute rejection (OR 1.93; 95% CI 1.14-3.28; $P = 0.015$). Tacrolimus trough levels of the HLA-i and HLA-c groups showed no difference at 1 year after KT (6.3 ± 2.2 vs. 6.4 ± 2.3 ng/mL, respectively) and thereafter.

Conclusions : HLA-i KT showed worse transplant outcomes until 1 year after transplantation. However, HLA-i KT after the early period had non-inferior graft and patient survival results compared to HLA-c KT.

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Chi-square=11.4315, p-value=0.0007

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Table 2. Cox regression of composite outcome

	HR	p-value	aHR*	p-value
1-12mo	1.57 (1.17-2.12)	0.003	1.93 (1.34-1.79)	<0.001
12-24mo	1.02 (0.58-1.80)	0.934	1.05 (0.53-2.11)	0.883
>24mo	0.90 (0.39-2.07)	0.798	1.02 (0.36-2.84)	0.977

*: adjusted with age, sex, BMI, comorbidity DM, cold ischemic time, HLA mismatch number, and donor's sex