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Outcomes of HLA-incompatible Living Donor Kidney Transplantation Compared to Deceased Donor Kidney Transplantation or Dialysis

Tai Yeon Koo¹, Juhan Lee², Deok Gie Kim², Kyu Ha Huh², Jaeseok Yang¹

¹Department of Transplantation Center, Seoul National University Hospital, Korea, Republic of

²Department of Surgery-Transplantation, Severance Hospital, Korea, Republic of

Objectives: HLA-incompatible (HLAi) living donor (LD) kidney transplantation (KT) is one of efforts to increase KT opportunity for sensitized end stage renal disease patients. Recently, there are controversies for outcomes of HLAI KT. US data showed better outcomes of HLAI LDKT compared to HLA-compatible (HLAc) deceased donor (DD) KT or dialysis, whereas UK data demonstrated that waiting for HLAc DDKT or HLAc LDKT by donor exchange has good outcomes comparable to HLAI LDKT. Therefore, we tried to compare outcomes of HLAI LDKT with those of HLAc DDKT or dialysis in Korea.

Methods: Two hundred patients underwent HLAI LDKT after desensitization that consisted of rituximab, plasmapheresis, and intravenous immunoglobulin between 2002 and 2018 in Seoul National University Hospital and Severance Hospital. Indications of desensitization were positive complement-dependent cytotoxicity cross-match, positive flow-cytometric cross-match, and positive donor-specific antibodies with negative cross-match. We compared outcomes among HLAI LDKT patients, wait-listed patients who had continued to undergo dialysis (n=3701), DDKT patients (n=1190), or patients who underwent either dialysis or DDKT (dialysis-or-DDKT group; n=4891).

Results: In the HLAI LDKT group, patient survival rates were 99.0% at 5-year and 96.9 % at 7-years post-KT. Patient survival rates at 5- and 7-years in the dialysis-group were 87.4%, and 83.1 %, respectively, and those in the DDKT-group were 94.3% and 93.4%, respectively. HLAI LDKT group showed significantly better patient survival rate compared to dialysis group and dialysis-or-DDKT group ($P < 0.001$), and it had a tendency of better patient survival than DDKT group ($P = 0.066$). However, there was no significant difference in the graft survival rates between HLAI LDKT and DDKT groups ($P = 0.677$).

Conclusions: In conclusion, patients undergoing HLAI LDKT has a survival benefit as compared with patients who were still on the waitlist for HLAc DDKT or received HLAc DDKT in Korea.