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Spousal Donor ABO Incompatible Kidney Transplantations are not Inferior to Spousal Donor ABO Compatible Kidney Transplantations

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Background: Due to donor organ shortage and advancement of transplantation medicine, proportions of kidney transplantation (KT) from spousal donor (SD) and/or ABO incompatible (ABOi) donor are increasing. But the outcomes of combination of SD with ABOi KT are not well known. The aim of this study was to show the non-inferiority of the SD grafts outcomes in ABOi KT to those of ABO compatible (ABOc) KT.

Method: From 3043 living donor KTs performed at 57 kidney transplantation centers registered in the Korean Organ Transplantation Registry, ABOi and ABOc SD KT groups were analyzed before and after 1 to 2 propensity score matching. Highly sensitized patients (defined as % panel reactive antibody over 80%) were excluded in this study. The primary outcomes were survival rates for grafts and patients. The secondary outcomes were biopsy proven acute rejection (BPAR)-free survival rate and renal function between the two groups. We also analyzed risk factors affecting the primary and secondary outcomes.

Result: There was no difference between ABOi SD KT group (n=125) and ABOc SD KT group (n=445) in baseline clinical characteristics and immunosuppressive regimen except a proportion of taking cyclosporine (4.8% vs. 17.8%, p=0.002). The 3-year death censored graft survival and patient survival for ABOi SD KT were similar to ABOc SD KT (92.9% vs. 95.9%, P=0.506, for graft survival; 96.8% vs. 98.6%, P=0.139, for patient survival). The 3-year biopsy proven acute rejection (BPAR) -free survival rates were also comparable between the two groups (78.1% vs. 83.1%, p=0.141). The renal allograft function showed no difference at 6 and 12 months after KT between the two groups. After 1 to 2 propensity score matching, there was no difference in primary and secondary outcomes between two groups, as well.

Conclusion: The outcomes of SD graft in ABOi KT are not inferior to those of ABOc KT in short term. ABO incompatibility did not affect the graft, patient survival and BPAR-free survival rate in SD KT. The low risk SD ABO incompatible KT can be a good alternative in recent era of donor organ shortage.

Key Words: ABO-incompatibility, Spousal donor, Kidney transplantation