232.6

Outcomes of dual kidney transplantation: Comparison to single kidney transplantation from standard and expanded criteria donors.

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Background: Nowadays, kidney transplantation (KT) is accepted as the treatment of choice for patients with end-stage renal disease (ESRD). However, due to a severe donor shortage, many ESRD patients are still on the waiting list and are suffering from the disease, even though use of kidney from expanded criteria donor (ECD) is increasing. Dual kidney transplantation (DKT) can be the way to use more kidneys from ECDs. We are trying to compare the outcomes of Dual kidney transplantation with those of single kidney transplantation from standard criteria donors (SCDs) and ECDs.
Methods: In 2014, we started dual kidney transplantation using kidneys from donors of over 70 years with one of the risk factor including serum creatinine (sCr) level is over 3.0 mg/dl, or estimated glomerulus filtration rate (eGFR) is under 30 ml/min. By 2017, we performed 15 cases of DKT. We compared the outcomes of these 15 recipients with 124 patients who got kidney transplant from SCDs and 80 patients who got kidney transplant from ECDs.
Results: Donors of DKT were older, more diabetic, and had higher sCr levels than ECDs and SCDs. Recipients of DKT was also older and diabetic than recipients of ECD and SCDs. Recipients of DKT showed less slow graft function(SGF) and lower nadir sCr than recipients of ECDs. Time to nadir sCr was shorter in DKT than in ECD KT. Graft survival rates and patient survival rates were not significantly different among three groups. Risk factor analysis for graft failure revealed that donor group was not the risk but recipient age and nadir sCr.
Conclusions: The graft survival rates of DKT were compatible with those of ECD KT and SCD KT. Some outcomes such as the incidence of SGF, nadir sCr level, and time to nadir sCr were even more favorable in DKT than in ECD KT. Therefore, DKT should be considered as an option to expand donor pool.

233.1

Evaluation of new Baskent university preservation solution for kidney graft during cold ischemia: Preliminary experimental animal study.

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Background: Organ damage due to long cold ischemia time remains a hurdle in transplantation. In this preliminary animal study, we compared the new Baskent University Preservation Solution (BUPS) with the University of Wisconsin (UW) and histidine-tryptophan-ketoglutarate (HTK) solutions.
Methods: BUPS composition included electrolytes, raffinose, mannitol, N-acetylcysteine, taurine, adenosine, and ascorbic acid. In experiment 1, kidneys from 50 male Sprague-Dawley rats were placed into BUPS, HTK, or UW solution to assess cold ischemia injury, with biopsies taken at different time points for pathologic evaluation. In experiment 2, to investigate ischemia-reperfusion injury, 5 rats were renal transplant donors to 10 rats and 6 pigs were used as transplant donors-recipients among each other.
Results: In experiment 1, no significant cellular injury was shown at up to 3 hours of perfusion with any solution. At 6- to 48-hour perfusion, tubular injury was shown, with lowest injury in BUPS and HTK versus UW and control groups ($P<0.01$). The BUPS group showed more moderate degree of tubular apoptosis and cytoskeletal rearrangement than the HTK and UW groups at 12-, 24-, and 48-hour perfusion ($P<0.01$). In experiment 2, after ischemia-reperfusion injury, no significant differences were found between HTK and BUPS groups regarding tubular damage. Although no significant differences were shown regarding tubular cytoskeletal rearrangment and apoptosis in pig reperfusion group with BUPS versus HTK, significant differences were shown with these solutions in other groups.
Conclusions: Tubular damage during ischemia-reperfusion injury (cytoskeletal disruption, increased apoptosis) were lower with BUPS. BUPS can be a cost-effective perfusion solution in transplantation.