

Outcome of Patients After Renal Transplant in a Limited Resources Setting in Nepal

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ABSTRACT

Introduction: Living unrelated donors remain an underutilized resource in many developed countries, despite their high graft survival rates. In this article, we compared the outcome of our living related and unrelated donor kidney transplants performed in human organ transplant center, Bhaktapur from 2013 January to 2016 August. **Materials and Methods:** Total of 225 patients underwent kidney transplant during that period and 145 were included for the analysis. Patients who visited in follow up in the last 3 months were included and remaining who could be contacted by phone were also included for the study. We analyzed graft and patient survival and other complications and outcome of these patients. **Results:** Total 53 unrelated and 92 related kidney transplant patients were included in the study. In unrelated group; mean age of recipient was 40. 5 years (25-61 years) and donors mean age was 38. 7 years (20-60 years). In related kidney transplant mean age of recipient was 31. 5 years (17-62) and mean age of donors was 46. 5 years (19-62). Total of seven mortality and seven graft rejections were recorded. One year survival in LRD and LURD group is 93. 6% and 91. 7% respectively, statistically not significant. **Conclusions:** Living unrelated and related kidney transplants provided comparable short term results in our patients. Donor's age, sex and relation to the recipient did not show significant effect to outcome. However, survival of recipients and grafts may need more careful and detailed long term evaluation.

Keywords: Kidney, related, transplantation

INTRODUCTION

Renal transplant is a well-established treatment of end stage renal disease (ESRD). One major factor affecting the wider use of this treatment is the insufficient pool of donors. Though increasing, deceased donation is not enough to fulfill the ever increasing demand of organs; hence the importance of living unrelated donation is becoming more relevant. [1,2] Living related donation (LRD) and living unrelated donation (LURD) is both superior to the cadaveric donation as reported in many transplant centers around the world. [3] Superiority of either LRD or LURD is yet to be established, however there are studies showing similar outcome of LRD and LURD. [4,5,6] The purpose of our study is to analyze the outcome of our patients who had undergone LURD and LRD kidney transplantation

MATERIALS AND METHODS

Data were collected from hospital records related to the LURD and LRD performed in our hospital

from January 2013 to August 2016. Total of 145 patients included in the study. Among total 225 patients undergone kidney transplant; Sixty eight patients were less than a year after transplant and 12 patients more than a year post transplant could not be contacted by phone. Among 145; 113 patients' data were available in the last 3 months follow up records and 32 patients were contacted by phone and data received. Graft survival was defined as the development of end stage renal disease and return to dialysis or re-transplantation.

Data were retrieved from the in-patient hospital records, follow up investigation records and by direct communication with patients or family members. We compared graft and patient survival, graft rejection and surgical site infection. Rejection was diagnosed based upon histological findings. Graft and patients survival were estimated based on the Kaplan-Meier curve. Patients dying with functioning graft were censored as failed graft. Multivariate analysis was done by Cox proportional hazard ratio.

Pre-transplant evaluation

Pre-transplant cross-match was done using complement dependent cytotoxicity (CDC) technique. DSA and PRA were tested for all patients. Induction therapy with anti-thymocyte globulin (ATG) was administered to all. If considered high-risk of rejection based on antibody titer, the dose of ATG was augmented. Usually ATG was given at 1 mg/kg i. v. on day 0, 1 and 2 post-transplant. Maintenance immunosuppression was a combination of Calcineurin inhibitor (Tacrolimus), Mycophenolate Mofetil (MMF) and steroid. All patients received 500 mg of hydrocortisone at the time of clamp release intra-operatively and 20 mg of prednisolone orally from post-operative day 3. Prednisolone was tapered to 5 mg once daily over the next 4-6 months. Tacrolimus trough levels were targeted at 6-8 ng/ml 6 months post-transplant and 5-8 ng/ml then after. All patients received MMF 500mg to 750mg twice a day. Trimethoprim-sulfamethoxazole prophylaxis was given to all patients for 6 months after transplant. Valgancyclovir prophylaxis is given for 3-6 months.

RESULTS

Total of 145 cases had undergone kidney transplantation among which 92 were LRD and 53 cases were LURD. Among LURD 44 (83%) cases were from female spouse to their male partner. Male spousal donation was significantly less, 7%. In LRD group mother to child was 41%, father to child was 20% and siblings donating in 28% cases.

Table 1: Patient's baseline characteristics

Recipient's age (LURD)	25-61 years (mean 40.5 yrs)
Recipient's age (LRD)	17-62 years (mean 31.5 yrs)
Donor's age (LURD)	20-60 years (mean 38.7 yrs)
Donor's age (LRD)	19-62 years (mean 46.5 yrs)
Hospital stay, LRD	10.5 days
Hospital stay, LURD	13 days

Females were the predominant donors in either, LRD

and LURD, groups. Number of donors in different groups is shown. (Table 2)

Table 2: Number of donors in different groups

Donation	Number
Wife to husband	44 (30.3%)
Husband to wife	4 (2.75%)
Mother to child	38 (26.2%)
Father to child	19 (13.1%)
Siblings	26 (18%)
Others	14 (9.7%)

Complication rate was 27%, bleeding being the most common (6%) complication followed by rejection and (5%) urinary tract infection (4%) and surgical site infection less than 2%. Nine patients required exploration in post-operative period, Hematoma evacuation and hemostasis was done, however no bleeding vessel was identified. Urinary tract infection was seen in 6 patients and pseudomonas aeruginosa was isolated in all cases. Rate of complications in the first two years and recent years is significantly different; as shown in table 3.

Table 3: Rate of complications in the first two years and recent year

Complication	Number (%)		Percent(%)
	2013/14 (Total 57)	2015/16 (Total 88)	
Bleeding	2 (3.5%)	7 (8%)	6.2
Rejection	3 (5.2%)	4 (4.5%)	4.8
UTI	6 (10.5%)	0	4.1
Cardiac complication	1 (1.7%)	1 (1.1%)	1.4
Chest infection	0	1 (1.1%)	0.7
Thrombotic events	0	2 (2.2%)	1.4
Mortality	5 (8.8%)	2 (2.2%)	4.8
SSI	2 (3.5%)	0	1.4
Urine leak	2 (3.5%)	0	1.4
Ureteric stricture	1 (1.7%)	0	0.7
NODAT	1 (1.7%)	0	0.7

Ureteric stenosis occurred in one patient and recon

struction of ureterocystostomy was done. Bleeding and UTI did not show any adverse effect on graft function. There was 7 mortality and 7 (5.5%) cases of graft rejection [5 cases of acute cellular rejection (ACR) and 2 cases of antibody mediated (AMR)] rejections.

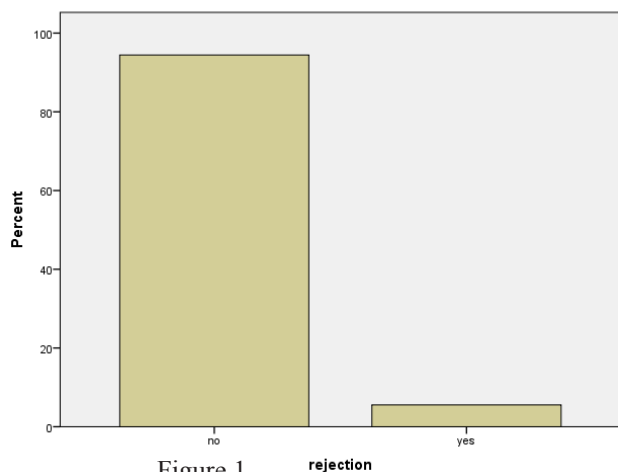


Figure 1 rejection

Recipient's and donor's age has no significant effect on overall survival. Graft and patient survival also was similar in both the groups. Hospital stay was lower in LRD group (13 vs 10.5 days, $p = 0.03$)

Kaplan-Meier survival curve

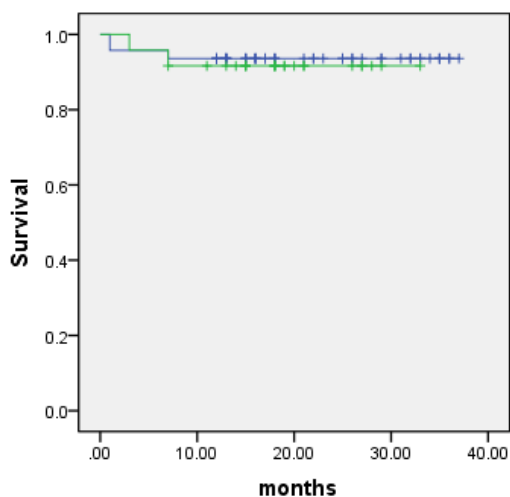


Figure 2

One year survival in LRD and LURD group is 93.6% and 91.7% respectively, statistically not significant.

DISCUSSION

Living donor kidney transplant is increasing gradually as excellent outcome had been already shown in several

studies.[6] There has been steady increase in number of patients getting kidney transplant. Better HLA matching is associated with long term allograft survival in renal transplant, there are several studies showing better outcome after LRD, but unrelated donors with no or less than 3 HLA match can also have a good long term survival.

In past, although survival rates after living unrelated and cadaver kidney transplants were similar, they were far below than survival rates following living related kidney transplantation.[7] In the next 20 years, most transplant centers abandoned living unrelated transplantation due to ethical issues of unrelated donation and the increasing availability of dialysis therapy. Theoretically, because of the stable health of the donor and the short ischemic time, living unrelated transplant should be advantageous over the cadaver transplant. It is possible that the lack of sufficiently effective immunosuppression was probably the main explanation for the suboptimal outcome in the initial experience with living unrelated transplantation and, indeed, in more recent reports the results are not different from those of living related transplantation.[8,9]. In 1996, the United Network for Organ Sharing Scientific Renal Transplant Registry reported that 1 year survival rates of grafts from 1-haplotype-matched siblings and unrelated donors were identical (92%), and better than those of cadaveric kidney transplants (84%). Similarly, at 3 years, graft survival rates of spousal (85%) and other unrelated (81%) transplants were in the range of 1-haplotype-matched living donor transplants (82%) and significantly higher than the results of cadaveric transplants (70%).[10] Our result is also not different than other studies and it shows no difference of outcome between LRD and LURD.[11,12,13] Complication rate was higher in the first two years, however with more experience in subsequent years the complications rate is decreasing.

CONCLUSION

Under current immunosuppressive protocols, kidney transplantation from living donors even in a resource scarce setting can result in a good outcome and it should

be promoted in developing countries where kidney diseases and need for kidney transplantation is rising.

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