

# RESULTS OF 1020 RENAL TRANSPLANTS: SINGLE CENTER EXPERIENCE

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**Abstract** - From 1986 to 1996, 1020 renal transplants were performed at our center. The purposes of this study were: 1) to evaluate the patient and graft survival rates and 2) to see if some donors and recipients characteristics such as age, sex, and relationship had any effects on graft survivals.

571 transplants were from living related donors (LRD) and 449 from living unrelated donors (LUD). 65.9% of recipients were males and 34.1% females, with the age range of 8-66 years. 72.5% of donors were males and 27.5% females, with age range of 17-69 years. 91.3% of unrelated donors were males with a mean age of  $28.8 \pm 5.6$  years.

From 1020 recipients, 737 (72.2%) were alive with a functioning graft. 211 (20.7%) had returned to dialysis and 72 (7.1%) had died with a functioning graft. Of 211 recipients who returned to dialysis, 171 were still alive and 40 had died. The overall patient survival was 89% and graft survival 72.7%.

726 patients who had transplant before October 1993 (at least 3 years post transplant) were selected for this study. 388 transplants were from LRD and 338 from LUD. In 388 LRD transplant patients, survival was 96.1%, 95.5% and 95%, and graft survival was 91.2%, 87.6% and 81.9% in 1, 2 and 3 years respectively. Graft survivals in 1, 2 and 3 years were significantly better in LRD transplants as compared to LUD transplants ( $P < 0.05$ ,  $P < 0.005$ ,  $P < 0.005$ ) but there was no significant correlation in patient survivals.

By performing log-rank test in Kaplan-Meier analysis there was also a significant correlation between graft survival and patient age group ( $P < 0.002$ ) and donor recipient relation ( $P < 0.02$ ) but not with donor and recipient sex. No correlation was also found when the graft survival of female patients with history of pregnancy was compared with those who had no pregnancy.

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**Key Words:** Kidney transplantation, graft survival, patient survival, living related donor

## INTRODUCTION

Kidney transplantation is known to be the treatment of choice for most of patients involved with end stage renal diseases. This treatment not only reduces mortality but also provides higher quality of life and less morbidity for patients (1,2). History of transplantation

in Hashemi-nejad hospital goes back to year 1986 when most of our candidates were transplanted abroad, mainly in U.K., with higher prices and many socioeconomic difficulties (3,4). This study provides us with accurate information about donor and recipient characteristics and patient and graft survivals. Similar to other international organ transplantation registries like CTS (Collaborative Transplant Study), this study also tries to find out correlations between survival rates and donor or recipient characteristics.

## MATERIALS AND METHODS

This retrospective study included all patients who were transplanted at this center from the first transplantation to 1020th. The census was performed in 1996 with no sampling or selection by referring to transplantation files and then was certified by confirmation of transplantation ward staff and even calling some patients by phone to find out present situation of the recipient. After all questionnaires were filled with raw data and the data was computerized by "TRANS" (a program specifically designed to computerize the data on sheets) the descriptive and analytic phase of data processing was accomplished by SPSS 6.0 program. The evaluation of survival rates was done by two methods, Kaplan-Meier analysis in 1006 eligible cases and 1, 2 and 3 years survival rates in 726 cases with at least 3 years of follow up.

## RESULTS

The characteristics of recipients and donors are described in Table 1 and Table 2 respectively.

The results of transplantations at this center were as follows:

From 1020 recipients, 737 (72.2%) were alive with a functioning graft. 211 (20.7%) had returned to dialysis and 72 (7.1%) had died with a functioning graft. Of 211 recipients who returned to dialysis, 171 were still alive and 40 had died. The overall patient survival was 89% and graft survival 72.7%. Other detailed information of survivals is presented here: mean graft survival time was 94 months (7.8 years) (Fig. 1).

**Table 1.** The characteristics of recipients

| Characteristics            | n of 1020 (%) | Description                |
|----------------------------|---------------|----------------------------|
| Age (yr.)                  | 33.3±10.9     | Range [8-66]               |
| Female                     | 348 (34%)     |                            |
| 21-30 yr. Age group        | 332 (33%)     | Maximal population density |
| Over 60 yr.                | 8 (0.78%)     |                            |
| O <sup>+</sup> blood group | 357 (35%)     |                            |
| A <sup>+</sup> blood group | 296 (29%)     |                            |
| B <sup>+</sup> blood group | 275 (27%)     |                            |
| HBs Ag <sup>+</sup>        | 30 (2.9%)     |                            |
| Women without pregnancy    | 203 (58.3%)   |                            |
| Women with 1 pregnancy     | 20 (5.7%)     |                            |
| Women with 2 pregnancy     | 30 (8.6%)     |                            |
| Women (> 50 yr.)           |               |                            |

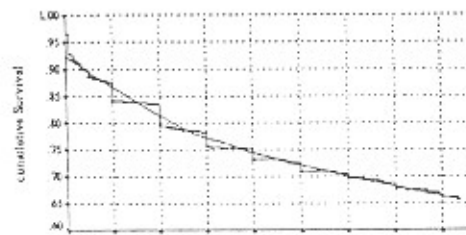
**Table 2.** The characteristics of donors

| Characteristics     | n of 1020 (%) | Description                |
|---------------------|---------------|----------------------------|
| Age (yr.)           | 32±9.7        | Range [17-69]              |
| Female              | 281 (27.5%)   |                            |
| 21-30 yr. Age group | 500 (50%)     | Maximal population density |
| Male donors age     | 30.0 ± 8.5    |                            |
| Female donors age   | 37.2 ± 10.6   |                            |
| Over 60 yr. of age  | 12 (1.2%)     |                            |
| LUD                 | 552 (45.1%)   |                            |
| Age                 | 28.8 ± 5.6    |                            |
| Female              | 8.7%          |                            |
| Brother             | 158 (15.5%)   |                            |
| Mother              | 107 (10.5%)   |                            |
| Sister              | 107 (10.5%)   |                            |
| LUD/LRD in 1986     | 0%            |                            |
| LUD/LRD in 1996     | 84%           |                            |

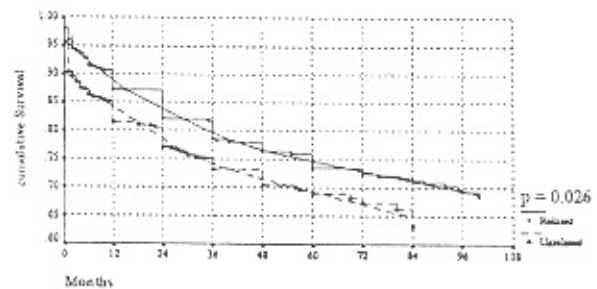
LUD : Living unrelated donor

LRD : Living related donor

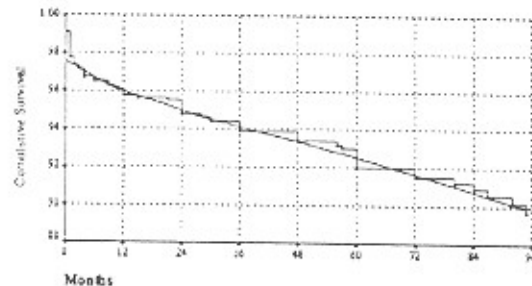
One 2 and 3 years graft survival rates were 91.2%, 87.6% and 81.9% respectively. There was significant correlation between graft survival and patient's age and donor-recipient relationship (Fig. 2), which was confirmed by log-rank test, with a P value of 0.002 for age groups and 0.026 for donor-recipient relation. Donor and recipient sex, donor age and pregnancies prior to transplantation in women had no effects on graft survivals. Mean patient survival time was 118 months (9.8 years) (Fig. 3). 1, 2 and 3 years patient survival rates were 96.1%, 95.5% and 95.0% respectively. Donor-recipient relationship, donor age and donor and recipient sex had no significant correlation with patient survivals. Patient age had a significant correlation with patient survival (P = 0.000).



**Fig. 1.** Graft survival, Kaplan-Meier plot



**Fig. 2.** Graft survival Kaplan-Meier plot for related and unrelated donors



**Fig. 3.** Patient survival, Kaplan-Meier plot

## DISCUSSION

Although patient and graft survivals are reasonable enough to be compared with international results (5,6,7) but growth of living unrelated donor (LUD) living related donor (LRD) ratio (Fig. 4), beside decrease in the number of LRDs throughout years compared with the fact of growth in the number of transplants donors are important topics to be noticed. To prevent such events, many countries have acts that do not allow trades or other immoral events in donation process (1,2). Although living donors have better outcomes when compared to cadaver donors specially if related (6,8), the shortage of cadaver donors and a need to living unrelated donors (1,5) is another reason

to global need for living donors.

Our recipients were younger in comparison to other countries; this can be because of younger structure of our society. Although transplantation in elder patients is a debatable subject (3,4), successful transplantation in younger patients ( $P < 0.002$ ) leads us to a priority for performing transplantation in young adults in our country.

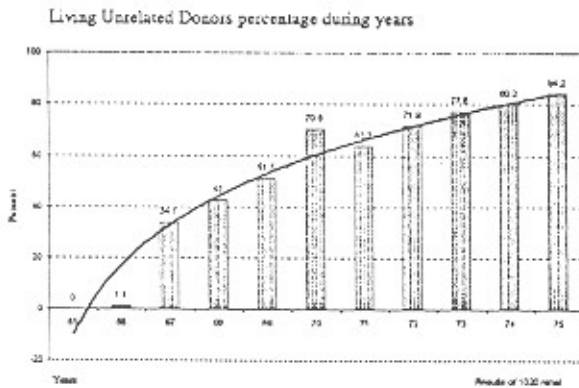


Fig. 4. Living unrelated donors percentage during years

Women benefiting transplantation treatment are half the number of men having this treatment; the probable reason is larger number of incidence of idiopathic glomerulonephritis in male population rather than female population, but social and cultural factors should be studied too.

It is recommended that this data bank should be updated and standardized so that it can provide us with complete, appropriate and confident information about transplantation situation at this center; and if this is done nationally, the gathered information can predict the whole country's situation. Then it will be possible to exchange data with other international organ transplant registries like CTS.

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