



Cadaveric Renal Transplantation: A Single-Center Experience

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ABSTRACT

Introduction. Renal transplantation remains the treatment of choice for end-stage renal disease (ESRD) in regard to patient survival. Iran was one of the first countries in the Middle East that began renal transplantation.

Methods. In a follow-up study, we enrolled all of our cadaveric renal transplant recipients from 2001 to 2007, namely, 39 cases. Related variables collected through checklists were entered into SPSS software version 16 and analyzed using the Kaplan-Meier method and by descriptive statistics.

Results. The mean age of the recipients was 35.18 ± 14.27 years. Twenty-one patients (53.8%) were men. The underlying disease for development of ESRD was diabetes (7 cases, 21.2%), hypertension (24.2%), glomerulopathies (36.4%), polycystic disease (PKD; 2.6%), and 5 (15.2%) were unknown. Four recipients (10.3%) were hospitalized again because of acute tubular necrosis after transplantation. An acute rejection episode was diagnosed in 7 (17.9%) graft recipients. Surgical complications after transplantation were as follows: urinoma, lymphocele, and surgical site leakage (each 1 case). One-year patient survival rate was 89.7% in this study; 4 recipients died within 1–9 months after transplantation. Death-censored 1-year graft survival rate was 100%.

Discussion. The survival rate of cadaveric transplant was in an acceptable range.

RENAL transplantation remains the treatment of choice for end-stage renal disease (ESRD).¹ Iran was one of the first countries in the Middle East region to begin renal transplantation. There are 2 types of donors for renal transplantation; cadaveric and living donors. According to Sheehy et al in the late 1990s there is the potential for 41 cadaveric donors per million population (pmp) on average in the United States.² In contrast, the rate remains low in Asian countries according to their Transplant Registry (4.27 pmp).³ Transplantation is limited worldwide by the organ shortage.⁴ Cadaveric donation is lower than expected due to cultural, legal, and medical problems. To solve the organ shortage we must make policies that improve cadaveric donation. The aim of our study was to determine whether kidney graft and recipient survivals after cadaveric donation were in a good range.

MATERIALS AND METHODS

This follow-up study enrolled all cadaveric renal transplant recipients from 2001 to 2007, namely, 39 cases using an aim-based sampling. Related variables collected through checklists were

entered into SPSS software version 16 (Copyright SPSS Inc, 2007) and analyzed using the Kaplan-Meier test and descriptive statistics.

RESULTS

Among 1775 renal graft recipients in our transplantation center from 1991 to 2008, only 39 transplantations were obtained from 20 cadavers, 1 of whom had a solitary kidney.

The mean age of the graft recipients was 35.18 ± 14.27 years. Twenty-one patients (53.8%) were males. The overall group developed ESRD due to diabetes (DM; 7 cases, 21.2%), hypertension (HTN; 24.2%), glomerulopathies (36.4%), polycystic disease (PKD; 2.6%), and 5 (15.2%)

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other causes. Twenty-nine patients (74.4%) had HTN and 3 patients (7.7%) had DM as the background disease. One transplant candidate was hepatitis B virus (HBV)+. The mean donor age was 27.72 ± 11.9 years. Most of the donors (14 cases, 35%) were in the second decade of their lives. Thirty-one (79.5%) donors were males. Four recipients (10.3%) were rehospitalized after transplantation because of acute tubular necrosis (ATN). Acute rejection were diagnosed in 7 (17.9%) recipients.

Surgical complications after transplantation included the following: 1 case of urinoma, which led to death, 1 case of lymphocele, and 1 of surgical site leakage. There were no surgical site infections, ureteral obliteration, and so on. The medical complications included 1 case (2.6%) of anemia and another of dyslipidemia, while 18 recipients (46.2%) developed de novo HTN. No chronic allograft nephropathy, pulmonary emboli, or cardiovascular complications were seen. One of our subjects developed arterial and venous obliteration after transplantation, which led to his death. No hyperuricemia was observed among our study group. One year survival rate of transplant recipients was 89.7% in this study. Four recipients died within 1–9 months after transplantation.

DISCUSSION

Providing organs for transplantation is an important issue now. There are various models for organ donation throughout the world. However, most transplantations are based on cadavers, but in Iran living unrelated donor transplantations are more frequent. The rate of cadaveric donation is increasing due to educational programs that have been implemented to reform incorrect cultural beliefs among the people.

Campbell et al⁵ reported a 25% refusal rate of brain-dead patients' relatives. But, in our country, almost 90%–95% of relatives refuse to donate organs of their beloved brain-dead relatives. Apart from the medical issues, legal, social, and ethical issues are key factors in obtaining consent from the relatives of potential donors.³

Because of the disparity between supply and demand of organs worldwide, policy makers and guidelines use new methods to facilitate the availability of cadaveric resources. Marginal donors, such as elderly donors or non-heart-beating patients, have been included recently seeking to extend donor pools in most countries.^{6,7}

In our country the second cause of death, after cardiovascular causes, is trauma and accidents, which in most cases involve young adults. Thus, there is some difference between age and physical status of brain deaths in Iran

compared with other developed countries, wherein the brain deaths consist of elderly people. Because age is an important predictive factor in the final prognosis of a transplant, we expect our results of cadaveric transplantation to show higher survival rates than other countries.

But because of including marginal organ donors in the pools of Western countries, the survival rate of this kind of graft has decreased compared with living donors.⁸ The function of grafts at 1 year after transplantation is a key factor in their life-long survival.⁹

According to the above results, the survival rate of cadaveric transplants in our center was acceptable (89.7%). In the study by Feroz et al in India, the survival rate for grafts was reported to be 85% with a recipient survival rate of 90%, which is similar to our results.¹⁰ Sharifi reported a 96.5% 1-year survival rate of kidney grafts from living donors,¹¹ a rate that is higher than ours with cadaveric transplantation, but, because it is possible to transplant other organs, such as liver, lung, or pancreas, from a cadaver, it's recommended that we make policies that improve cadaveric donor transplantation.

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