American Journal of Medicine and Medical Sciences 2019, 9(9): 332-336
DOI: 10.5923/j.ajmms.20190909.05

Long-Term Outcomes of Patients Undergoing Living-Related Kidney Transplantation

Feruz Gafurovich Nazirov, Ravshan Aliyevich Ibadov, Fazliddin Shamsitdinovich Bakhritdinov, Zokhidjon Turdaliyevich Matkarimov, Sardor Khamdamovich Ibragimov*

Republican Specialized Scientific-Practical Medical Center of Surgery named after Academician V.Vakhidov, Tashkent, Uzbekistan

Abstract **Objective:** this study aimed to assess long-term outcomes of living-related kidney transplantation. **Methods:** We analyzed the long-term outcomes of 159 patients undergoing living-related kidney transplantation from 2010 to 2018 in Republican Specialized Scientific-Practical Medical Center of Surgery named after Academician V.Vakhidov (Tashkent, Uzbekistan). New optimized method was performed for the main group (n=98) observed since February 2018, the comparison group included 61 cases from 2010 to February 2018 operated in the traditional way. **Results:** Graft rejection was observed in 5 (5.2%) recipients of the main group and in 6 (10.2%) recipients from the comparison group. Post-transplantation diabetes mellitus developed in 13 (8.3%) recipients out of the total, in 8 (8.2%) and 5 (8.5%) cases of the main and comparison groups, respectively. Pulmonary tuberculosis observed in the comparison group in 2 (3.4%) cases. Acute respiratory failure reported in 3 (3.1%) recipients of the primary and 5 (8.5%) recipients of the comparison group. The most frequent cause of death (1.3%; 2 cases) in the late postoperative period was chronic graft rejection with the development of acute respiratory and cardiovascular failure. Pneumonia, as the cause of death, was observed in 1 (0.6%) case of the comparison group. Acute intestinal infection, sepsis and liver failure was observed in 1 (0.6%) recipient from the comparison group. Brain stroke caused death in 1 (1.0%) case in the main group. **Conclusion:** The development of a national protocol including recommended international guidelines for management of patients with end-stage renal failure and improving of tactical and technical aspects reduced the incidence of complications in the long-term period from 47.5% to 22.7% and the mortality rate from 8.2% to 4.1% (P=0.029).

Keywords Kidney transplantation, Living-related renal transplant recipients, Long-term outcomes

1. Introduction

Kidney transplantation is characterized by optimal results in terms of the duration and quality of life of patients and, accordingly, is considered the gold standard of renal replacement therapy [1-3]. Organ transplantation of living donors has a lower incidence of graft rejection, as well as more satisfactory patient survival rates. Kidney transplantation from a related donor is a pre-planned operation, which in some cases completely avoids dialysis therapy [4,5].

Recently observed increasing of living kidney donors. Laparoscopic donor nephrectomy has a shorter duration of disability and fewer days of hospitalization, will further increase the number of living donors [6,7].

In the conditions of the national health care system, kidney transplantation, as a radical form of treatment of chronic renal insufficiency, is at the stage of dynamic improvement. In this connection, the main the main aim was to assess long-term outcomes of living-related kidney transplantation.

2. Methods

We analyzed the long-term outcomes of 159 patients undergoing living-related kidney transplantation from 2010 to 2018 in Republican Specialized Scientific-Practical Medical Center of Surgery named after Academician V.Vakhidov (Tashkent, Uzbekistan).

Modern principles of diagnosis and treatment were used then laboratory and instrumental studies handled to follow up the immediate and long-term results of related kidney transplantation.

The main group consisted of 98 cases observed since February 2018, in which kidney transplantation was performed according to a new optimized method, the comparison group included 61 cases from 2010 to February 2018 operated in the traditional way.

Among the recipients of both groups, patients aged from

* Corresponding author:
dr.sardor.ibragimov@gmail.com (Sardor Khamdamovich Ibragimov)
Published online at http://journal.sapub.org/ajmms

20 to 44 years prevailed. Male recipients were 135 (84.9%) cases.

The main cause (95.6%) of renal failure was chronic glomerulonephritis, chronic pyelonephritis was detected in 1 (0.6%) case, 1 recipient (0.6%) suffered from type I diabetes, in 2 (1.2%) of the cases had urolithiasis, in 1 (0.6%) of the patient - chronic renal disease of unknown etiology, and in 1 (0.6%) of the cases polycystic kidney disease was detected.

3. Results

So, total complications in the late postoperative period were observed in 50 (32.1%) cases out of the total number of recipients studied, 22 (22.7%) in the main group and 28 (47.5%) in the comparison group (P=0.024).

We observed chronic graft rejection in 5 (5.2%) recipients of the main group and in 6 (10.2%) recipients from the comparison group. Post-transplantation diabetes mellitus, as the most frequent long-term complication, developed in 13 (8.3%) recipients out of the total, in 8 (8.2%) and 5 (8.5%) cases of the main and comparison groups, respectively. Pulmonary tuberculosis was observed only in the comparison group in 2 (3.4%) cases. Pulmonary complications with the development of acute respiratory failure were reported in 3 (3.1%) recipients of the primary and 5 (8.5%) recipients of the comparison group.

Dyspepsial disorders were relatively frequent complications of the long-term period after kidney transplant and accounted for 7.1% (11 cases) of the total number of recipients.

Among the treatments taken in transplanted kidney function failure, hemodialysis, graft removal and retransplantation can be distinguished. In the late postoperative period 3 recipients from the main group and the comparison group needed hemodialysis. Retransplantation was carried out only in the comparison group in 2 (3.4%) cases. Removal of the graft in violation of its function was performed in 2 (2.1%) cases of the main one and also in 2 (3.4%) cases of the comparison group (Fig. 1).

Table 1. Complications after kidney transplantion

	Main group		Comparison group		All	
	Abs.	%	Abs.	Abs.	%	Abs.
Ureterovesical anastomotic strictures	1	1,0%	1	1,7%	2	1,3%
Chronic graft rejection	5	5,2%	6	10,2%	11	7,1%
Post-transplant diabetes	8	8,2%	5	8,5%	13	8,3%
Pulmonary tuberculosis	0	0,0%	2	3,4%	2	1,3%
Pulmonary complications	3	3,1%	5	8,5%	8	5,1%
Dyspepsial disorders	4	4,1%	7	11,9%	11	7,1%
Brain Lesions	0	0,0%	1	1,7%	1	0,6%
Stroke	1	1,0%	1	1,7%	2	1,3%
Total	22	22,7%	28	47,5%	50	32,1%
	χ^2 test =5,129; Df=1; p=0,024				-	-

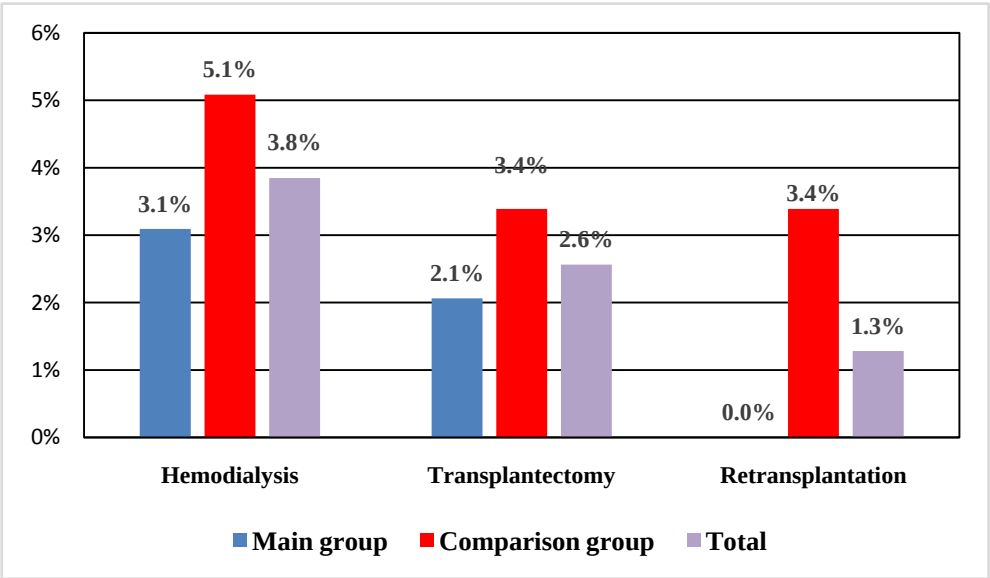

Figure 1. Types of treatment taken for transplanted kidney function failure

The distribution of recipients according to the nature of the complications observed in the late postoperative period is shown in fig. 2. So, it was possible to distinguish complications associated with transplantation in compliance with the recommendations that occurred in 7 (4.5%) cases out of the total number studied, in 3 (3.1%) recipients of the main group and 4 (6.8%) recipients of the group comparisons. If the recommendations were not followed, complications were observed in 6 (3.8%) patients, in 3 (3.1%) cases in the main group and in 3 (5.1%) cases in the comparison group. The most frequent complications of the late period were associated with immunosuppression, which occurred in 15 (15.5%) recipients of the main and 19 (32.2%) recipients of the comparison group. Complications unrelated to transplantation were observed in 3 (1.9%) cases.

Mortality in the long-term period was 3.8% (6 cases), in the main group - 3.1%, in the comparison group - 5.1% (table 2).

When analyzing the structure of mortality, it was revealed that the most frequent cause of death (1.3%; 2 cases) in the late postoperative period was chronic graft rejection with the development of acute respiratory and cardiovascular failure. Pneumonia, as the cause of death, was observed in 1 (0.6%) case of the comparison group. Acute intestinal infection, sepsis and liver failure was observed in 1 (0.6%) recipient from the comparison group. Acute cerebrovascular insufficiency caused death in 1 (1.0%) case in the main group.

In fig. 3 shows the frequency of complications and mortality in the late postoperative period after a related kidney transplant, depending on the cause.

So, out of the total number of recipients (n=159), 50 (32.1%) patients with a complicated long-term period, 22 (22.7%) cases in the main and 28 (47.55) cases in the control group (P<0.05).

A total of 47 (30.1%) of the complicated cases were associated with transplantation, of which 21 (21.6%) were observed in the main group, 26 (44.1%) in the comparison group. At the same time, the lethality associated with transplantation was 1.0% and 5.1% in the main group and the comparison group, respectively.

In 1 (1.0%) recipient of the primary and 2 (3.4%) recipients from the comparison group, the complications observed in the long-term were not associated with transplantation. Mortality for other reasons was 2.1% and 0.0% in the main and comparison groups, respectively.

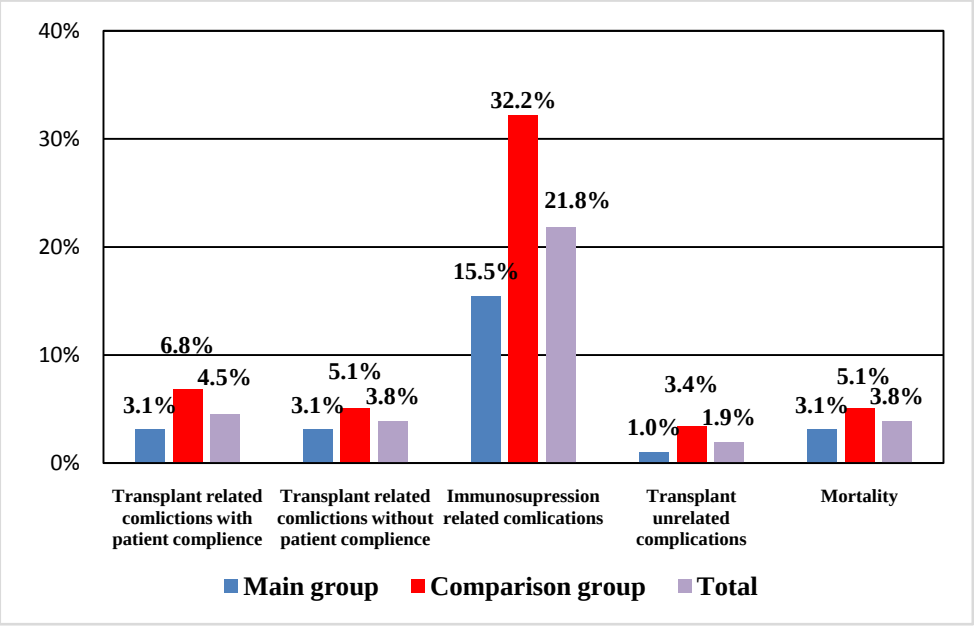

Figure 2. The distribution of patients according to the characteristics of complications

Table 2. Mortality structure in the long-term period after kidney transplantation

Causes	Main group		Comparison group		All	
	Abs.	%	Abs.	Abs.	%	Abs.
Pneumonia	0	0,0%	1	1,7%	1	0,6%
Acute intestinal infection, sepsis, liver failure	0	0,0%	1	1,7%	1	0,6%
Stroke	1	1,0%	0	0,0%	1	0,6%
Chronic graft rejection, acute cardiovascular failure, acute respiratory failure	1	1,0%	1	1,7%	2	1,3%
Car crash	1	1,0%	0	0,0%	1	0,6%
Total	3	3,1%	3	5,1%	6	3,8%

The combined frequency of complications observed in the immediate and distant period after a related kidney transplant is shown in Fig. 4. So, in the main group, the immediate period was complicated in 11.2% of cases, in the comparison group - 29.5% (P=0.029). In the long-term period, the main group of recipients had complications in 22.7% of cases, in the comparison group - in 47.5%. Overall mortality was 5.7% (n = 9).

4. Conclusions

The development of a national school of live-related kidney transplantation, protocol of diagnosis and management of patients with end-stage renal failure for surgery including recommended international guidelines, as well as improving of tactical and technical aspects of surgical intervention, reduced the incidence of complications in the near postoperative period from 29.5% to 11.2% in the long-term period from 47.5% to 22.7% and the mortality rate from 8.2% to 4.1% (P=0.029).

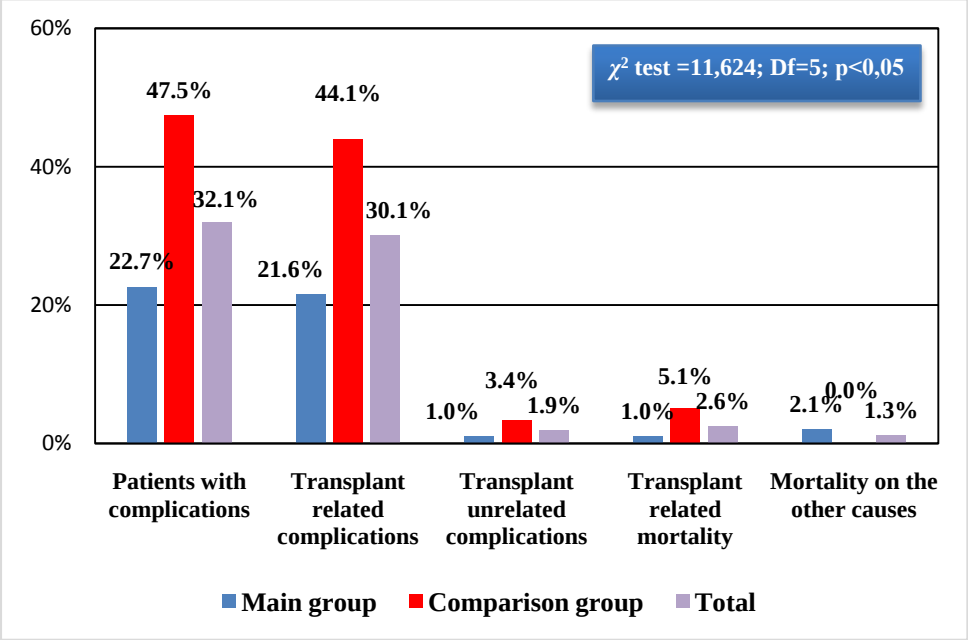

Figure 3. The frequency of complications and mortality, depending on the cause

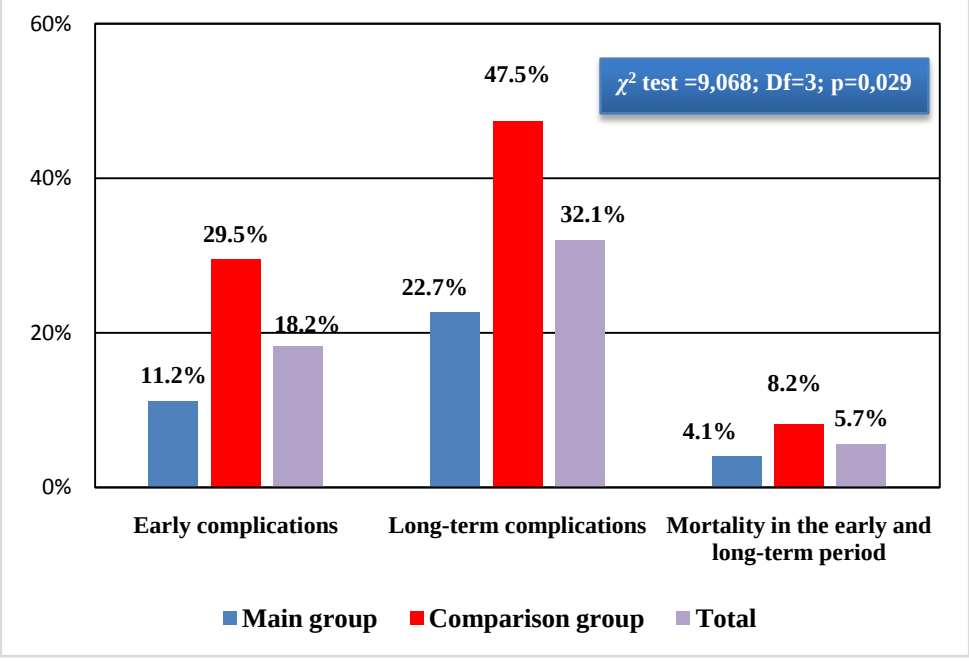

Figure 4. Composite data of complications and mortality in the early and long-term periods after kidney transplantation

ACKNOWLEDGEMENTS

This work was supported by Republican specialized scientific–practical medical center of surgery named after academician V.Vakhidov, Tashkent, Uzbekistan.

REFERENCES

[1] Cozzi E, Biancone L, López-Fraga M, et al. Long-term outcome of living kidney donation: position paper of the European Committee on Organ Transplantation, Council of Europe. Transplantation. 2016; 100: 270–271.

[2] Ghazanfar A, Tavakoli A, Zaki MR et al: The outcomes of living donor renal transplants with multiple renal arteries: A large cohort study with a mean follow-up period of 10 years. Transplant Proc, 2010; 42: 1654–58.

[3] Huang N, Foster MC, Lentine KL, et al. Estimated GFR for living kidney donor evaluation. Am J Transplant. 2016; 16: 171–180.

[4] Fernández Fresnedo G, de la Oliva Valentín M, Cruzado JM, et al. [Objectives and methodology of S.E.N-ONT guidelines for living donor kidney transplantation]. Nefrologia. 2010; 30(Suppl 2): 1–2.

[5] Lanot A, Bouvier N, Chatelet V, Lecouf A, Tillou X, Hurault de Ligny B. Outcome of living kidney donors for transplantation. Nephrol Ther. 2017 Nov; 13(6): 448-459.

[6] Cooper M, Kramer A, Nogueira JM, Phelan M: Recipient outcomes of dual and multiple renal arteries following 1000 consecutive laparoscopic donor nephrectomies at a single institution. Clin Transplant, 2013; 27: 261–66.

[7] Rodríguez Faba O, Boissier R, Budde K, et al. European Association of Urology Guidelines on Renal Transplantation: Update 2018. Eur Urol Focus. 2018 Mar; 4(2): 208-215. doi: 10.1016/j.euf.2018.07.014.