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CLINICAL REVIEW ON LIVING RELATED DONOR KIDNEY TRANSPLANTATION

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Annotation: The paper presents the initial results of 12 kidney transplants from living related donors in a city clinical hospital in Samarkand, which demonstrate the effectiveness of the method for treating patients with end-stage chronic renal failure.
Key words: Kidney transplantation, living donor, immunosuppression, chronic renal failure.

КЛИНИЧЕСКИЙ ОБЗОР ПО ТРАНСПЛАНТАЦИИ ПОЧКИ ОТ ЖИВОГО РОДСТВЕННОГО ДОНОРА

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Аннотация: В работе приводятся первоначальные результаты 12 трансплантации почки от живых родственных доноров в условиях городской клинической больнице в г. Самарканде, что демонстрируют эффективность метода для лечения больных с терминальной стадией хронической почечной недостаточности.
Ключевые слова: Трансплантация почки, живой донор, иммуносупрессия, хроническая почечная недостаточность.

TIRIK DONORDAN BUYRAK TRANSPLANTATSIYASINI KLINIK SHARXI

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Annotatsiya: Maqolada Samarqand shahridagi shahar klinik shifoxonasida tirik qarindosh donorlardan 12 ta buyrak transplantatsiyasining dastlabki natijalari keltirilgan bo‘lib, ular surunkali buyrak etishmovchiligining so‘nggi bosqichidagi bemorlarni davolash usulining samaradorligini ko‘rsatadi.

Kalit so'zlar: Buyrak transplantatsiyasi, tirik donor, immunosupressiya, surunkali buyrak etishmovchiligi.

Topicality

According to the United States Renal Data System, 2021, the global prevalence of CKD is 10-18%, with similar trends in North America and Europe. The prevalence of CKD in the United States (US) has increased from 10.0% in 1988-1994 to 15%. Similarly, in the United Kingdom, an estimated 15% of people over 35 years of age have CKD (Hirst J.A., et al. 2020). In northeastern Italy, 13.2% (95% CI 11.6-13.7) of the total population suffered from CKD [1,2,4].

Asia, the largest and most populous continent on earth, is believed to have the highest burden of CKD in the world. In a study conducted in Thailand to estimate the prevalence of stages III and IV of CKD among those over 35 years of age was estimated at 20.1% and 0.94%, respectively. This represents approximately 5.0 million and 230,000 Thais with stages III and IV of CKD, respectively [1,2,4]. In Uzbekistan, according to recent data, the incidence of chronic renal failure is approximately more than 700 per 1 million population (Sabirov M.A. et al., 2021). The Ministry of Health reports that more than 3000 patients in Uzbekistan need program hemodialysis. To date, transplantation in Uzbekistan can be performed only from a living relative to a patient. Over the past five years, more than 1000 kidney transplants have been performed in the republic, and 55 kidney transplants from living related donors have been performed in Samarkand region. Although these figures are encouraging, they do not meet the need for this operation. According to WHO data, the minimum need for kidney transplantation per 1 million population is 40 operations per year. If we take into account that at the moment there are more than 36 million people living in the Republic, including 4 million people in Samarkand region, the potential need for kidney transplantation is at least 1500 and 150 cases respectively [1,2,4].

The development of science in the XXI century is marked by significant achievements in various fields, among which transplantology occupies one of the first places. Today, at the beginning of the third millennium, transplantology is one of the most modern fields, allowing to radically solve the problems of treatment of patients with serious diseases [1,2,4]. Thousands of operations of transplantation of vital organs and, first of all, kidneys are performed in the world. To date, the main number of kidney transplantation operations is performed for the terminal stage of chronic renal failure, and its performance is possible in two variants - cadaveric kidney transplantation and kidney transplantation from a living related donor.

Thanks to the successes of surgery, immunology, the emergence of new immunosuppressants and modern diagnostics have saved the lives of many patients. Nevertheless, there are still enough unsolved problems in transplantology.

Despite the fact that about 30,000 kidney transplants are performed annually in the world, most authors studying the results of transplantation mention the shortage of donor organs. The most promising way of solving this problem in the world practice has become the use of kidney transplants from living donors, both related and unrelated to the recipient. According to various authors, the number of transplants from living donors increased by more than 100% during the 90s [3].

There is no country in the world that can provide all potential recipients with cadaveric organs. In several countries, due to organizational, ethical, religious, legal and economic reasons, the shortage of cadaveric organs is dramatic, and the inability to provide all patients with terminal chronic renal failure (TCRF) with hemodialysis means death for these patients. In any case, most kidney transplant centers see the need to use kidneys from living donors as much as possible.

The advantages of kidney transplantation from a living donor are:

- partial solution to the problem of donor organ shortage;
- absence of a long waiting period for a donor organ;
- the possibility of choosing the optimal period for transplantation (preparation of donor and recipient);
- possibility to perform transplantation before the start of dialysis therapy;
- possibility of using less aggressive immunosuppression regimes;
- provision of higher early graft function;
- improvement of short-term (approximately 95% vs. 85% when estimating one-year graft survival rate) and long-term results of transplantation (graft half-life 12-20 years vs. 10-12 years in cadaveric organ transplantation).

Kidney transplantation from a related donor is a preplanned operation, which allows in some cases to completely avoid dialysis therapy. This, of course, determines the economic feasibility of such an operation. In general, the success of kidney transplantation from a living related donor is largely related to the genetic similarity of the donor and recipient. Immunosuppression is not known to be required in rare cases of transplantation between identical twins.

Literature review in this area allows us to conclude that kidney transplantation from a related and unrelated living donor is not only clinically and ethically acceptable, but also shows positive results in the treatment of patients with these pathologies.

Purpose: To review the recent literature and share data from some clinical findings

Materials and Methods. The results of treatment of 15 patients with CKD who underwent kidney transplantation surgeries on the basis of the Regional Clinical Hospital of Samarkand since October 2019, kidney donors in all cases were relatives of the recipients, compatible according to the results of phenotyping and cross-match were used as the main material in the article. The operations were performed jointly with the teams of vascular surgeons and kidney transplantologists of the State Institution " Republican Specialized Scientific and Practical Medical Center of Surgery named after academician V.Vakhidov", Tashkent.

Indications for kidney transplantation in all patients were terminal chronic renal failure, the cause of the latter in 11 cases was chronic glomerulonephritis and in 4 cases - chronic pyelonephritis. Hemodialysis treatment was received from 6 months to 5 years. All patients had anemia of moderate severity. The age of the patients ranged from 28 to 47 years and averaged 36.7 ± 3.1 years. The examination of potential donors and recipients was carried out in accordance with international protocols, including typing and conducting a direct cross-match, multispiral computed tomography in angiography mode. The age of the donors ranged from 23 to 58 years and averaged 41.2 ± 5.3 years. 9 kidney transplants were performed from siblings and 6 from parents (4 mothers, 2 father), and there was a complete match in phenotype.

We paid special attention to the data of computed tomography in angiography mode, which made it possible to determine the type of transplantation of a donor kidney with maximum accuracy.

It is known that preference is given to left-sided nephrectomy. This is mainly due to the fact that the left kidney has a longer vein, which creates certain technical convenience in performing operations on the donor and recipient.

Therefore, left-sided nephrectomy was performed in all cases. As a preoperative preparation on the eve of surgery, the donor underwent catheterization of the central vein. 6-8 hours before the operation, the donor was hydrated using physiological solution and 5% glucose solution in the volume of 2-4 liters, which was continued during the operation. In order to prevent thromboembolic complications, fraxiparin was administered in a dose of 0.3 ml 2-4 hours before the operation. Immediately after the operation, the donors were elastic bandaged of the lower

extremities. Donor kidneys were taken in 5 cases by endovideoscopic technique and in 2 cases by laparotomy.

The weight of kidneys ranged from 154 to 207 grams. After execution, it was transferred to a separate table where its perfusion with preserving solution was started immediately. The time of primary thermal ischemia did not exceed 2 min. In all cases we used the solution "Custodiol" at the temperature of 4-5 0C in the amount of up to 1 liter with the addition of 5000 units of heparin. The recipient's operation was started immediately after nephrectomy proper. The timing of cold ischemia was 1 hour 20 min ±14 min. Secondary thermal ischemia did not exceed 30 min.

In all cases, the operation was performed according to the standard technique, anastomoses were made with the external iliac artery and vein in the "end-to-side" type. In one case, the donor kidney had an additional artery coming from the aorta to the lower pole. In this case, 2 end-to-side anastomoses were performed with the external iliac artery. Arterial anastomoses were performed with monofilament sutures of "Prolene-6/0" type. Ureterobladder-bladder joints were performed according to the Starzl technique using "PDS-5/0" thread. All recipients were intraoperatively injected with 500-750 mg of methylprednisolone before graft revascularization.

Results and Discussion. In the majority of donor-recipient pairs there was AB0 group identity. In 1 case transplants were performed according to the principle of group compatibility: 0(1) to B(III). All pairs had HLA-compatibility by at least one haplotype. Only 3 donors had a transient increase in creatinine to 0.18-0.19 mmol/L after nephrectomy. The time of postoperative stay of donors in the clinic was 8.1 ± 3.1 days, full rehabilitation - no more than 3 months. Up to the present time, no proteinuria, increased azotemia, and tendency to arterial hypertension have been detected in any donor.

All transplanted kidneys began to excrete urine immediately after their inclusion into the recipient's bloodstream, daily diuresis in 2 recipients in the postoperative period was from 3500 ml to 7400 ml, and in 1 - up to 15 liters with subsequent decrease of diuresis on the 7th day to 2500 ml.

All patients were treated with standard three-component immunosuppressive therapy (Tacrolimus, Mycophenalate) in full volume under control of Tacrolimus, prophylaxis of viral and bacterial infection, gastroprotectors, antihypertensive drugs, antibacterial therapy.

There were no postoperative complications in donors, and 1 recipient had hematoma formation in the retroperitoneal space, which required revision of the surgical wound. In the postoperative period, none of the recipients required hemodialysis sessions, and there were no episodes of rejection. The time of creatinine level normalization (reduction to 0.11 mmol/l and below) averaged 5.1 ± 2.2 days. The mean plasma creatinine level 1 month after transplantation was 0.11 ± 0.03 mmol/L, and 3 months later it was 0.11 ± 0.012 mmol/L. The level of glomerular filtration 3 months after transplantation was 93.5 ± 14.3 ml/min. Rapid recovery of graft function, absence of rejection crises and postoperative complications, absence of the need for hemodialysis allowed to significantly reduce the period of hospitalization of recipients - up to 15 ± 4.1 days.

Conclusion

Thus, kidney transplantation from living related donors opens not only a real way of solving the problem of deficit of donor organs, but also, undoubtedly, is a more effective method of treatment of patients with terminal stage of chronic renal failure.

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