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Kidney Transplantation Program in Montenegro

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Abstract

Introduction. There was no transplantation program in Montenegro until 2012. On the other hand, there were 93 patients with transplanted kidney. These transplantations were performed abroad; 15% in areas of black organ markets (India, Pakistan, Russian Federation). Beside the ethical problems, these transplantations carried a high risk of complications.

Methods. Our health system had to ensure solution for patients with terminal organ failure. Preparation of all neccessary conditions for the beginning of transplantation program in Montenegro started in 2006 with different activities including public, legal, medical, educational and international cooperation aspects.

Results. The first kidney transplantation from living donor in Montenegro was preformed on September 25th, 2012. In the period from 2012 until now 23 kidney transplantations from living related donor were performed and one kidney transplantation from deceased donor in the Clinical Center of Montenegro. In the a two year-follow-up period, all patients to whom kidney transplantation was performed are in a good condition and without serious complications in posttransplant period.

Conclusion. Development of the transplantation program allowed controlled transplantation and safety of patients. Our next steps are development of deceased organ donor transplantation and achievement of higher rate of deceased donor organ transplantation and individualization of immunosuppressive therapy.

Key words: transplantation program, living donor, deceased donor, transplant tourism

Introduction

Kidney transplantation is considered the treatment of choice for patients with end-stage renal disease (ESRD). Advantages of kidney transplantation in relation to dialysis are reflected in the better quality of life and prolonged survival in renal transplant recipients.

Until 25th of September 2012, since we have started transplantation program in Montenegro, patients from Montenegro who needed kidney transplantation, could not undergo this procedure in the institutions of the health system of Montenegro, due to lack of legal, ethical and medical conditions, necessary for transplantation program. In patients who had living related donors for kidney transplantation, transplantations were performed in medical institutions in neighboring countries with existing transplantation program such as Croatia, Serbia, Bosnia and Herzegovina. However, a large number of patients who needed kidney transplantation had no living related donors. Montenegro is one of the states which signed the Istanbul Declaration that strictly prohibits trafficking in human organs. Nevertheless, patients from Montenegro, who aspired to have a better quality of life and who wanted to avoid dialysis complications have decided to purchase necessary organs illegally and to perform kidney transplantation in countries with a black market of organs or to go for a transplantation in states in which it was legally possible for foreigners to be placed on a waiting list for a kidney transplantation. The development of transplantation program in Montenegro is organized and planned through all the necessary segments such as: legislation, international collaboration, education, provision of necessary infrastructure for the development of the program and raising and dissemination of knowledge about the importance of this program in the professional and general population.

In February 2011 Montenegro became a full member of RHDC - Regional Health Development Center, which is part of SEEHN - South East European Health Network, and which regional center is in Zagreb. RHDC is an organization and project supported by the Council of Europe, with aim to develop transplantation medicine in countries of South-Eastern Europe and to establish all necessary conditions for the development of transplantation in South-Eastern Europe. The most important

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issue to be accomplished in the international cooperation was signing of the collaboration agreement between the Ministry of Health of Montenegro and the Republic of Croatia, which happened in April 2012. According to this agreement, Montenegro specialists can fully count on the cooperation with Croatian experts in regard to the education of our staff and performing transplantations. Today Croatia, with its own model of organ transplantation, has become one of the leading countries in Europe, and with the number of kidney and liver transplantations, has became a leading country globally since 2012.

The bilateral agreement on collaboration in the field of transplantation program was signed between Montenegro and Croatia on 23rd of October 2013. In line with this agreement, patients from Montenegro who need organ transplantation from deceased donors, who do not have living related donor, can be placed on waiting lists in Croatia or the Eurotransplant waiting lists. The contract involves reciprocity, i.e. depending on involvement of donation of organs from cadavers and on the number of organs from deceased donors given in the Eurotransplant system, the same number of patients from Montenegro could be put on waiting lists in Croatia for obtaining solid organs such as liver and heart. According to the contract signed between our country and the Ministries of Health, explanted kidneys from deceased donors in Montenegro, stay in Montenegro and transplantations are performed for patients who are on the waiting list for a kidney in Montenegro. If we cannot find a potential recipient who has immunological and medical eligibility for treatment with kidney transplantation, explanted kidneys will go to the Eurotransplant system and will be allocated according to the principles of allocation in the Eurotransplant.

In the present study we evaluate current status of renal transplantation in Montenegro.

Materials and methods

This study includes data about kidney transplantation in Montenegro until 2012, data about kidney transplantations conducted in centers outside the health system of Montenegro, as well as data on renal transplantation since the establishment of the transplantation program performed at the Clinical Center of Montenegro. The observed period of monitoring of patient and graft survival after transplantation covers a period of 13 years, from 2002 to 2015. Standard statistical methods of data analyses were used.

Results

In the period from 2002 to 2012, 95 patients from Montenegro were treated by kidney transplantation in different centers in the region and abroad. Since the establishment of the transplantation program in the health system of Montenegro, a total of 24 kidney transplantations in the Clinical Center of Montenegro were conducted. Distribution of the number of transplantations in the reporting period is shown in Figure 1.

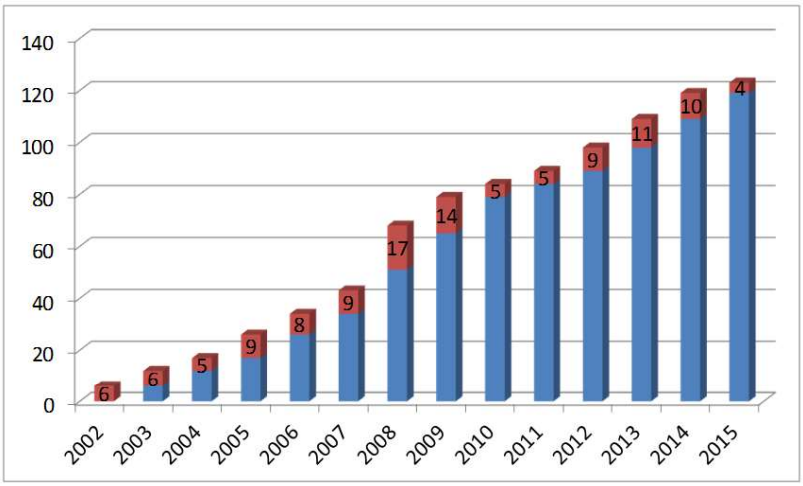

Fig. 1. Number of patients with kidney transplant by year of kidney transplantation (cumulative and new). Upper parts of the bars represent new patients.

According to the type of donor, in the reporting period, 77 kidney transplantations from living related donor were performed (65.2%), 27 kidney transplantations from deceased donors (22.8%) and 14 transplantations (12%) from a living unrelated donor.

The largest number of living related transplantations was performed in clinics of the neighboring countries. The largest number of such transplantations were done in the Clinical Center of Serbia, Belgrade (33), then in the Military Medical Academy, Belgrade, Serbia (11), in the Clinical Center of Rijeka, Croatia (6), the Clinical

Center of Sarajevo, Bosnia and Herzegovina (1), while 2 such transplantations were performed in Paris (France). Since the establishment of organ transplantation in the Clinical Centre of Montenegro 23 kidney transplantations from living related donors have been done. One kidney transplantation from living related donor was done in the Clinical Hospital Center Zagreb, Croatia.

Kidney transplantation from deceased donors of patients from Montenegro in the reporting period were performed in clinical centers abroad where it was possible, according to the applicable legal norms of those countries where those patients could be put on waiting lists with adequate financial compensation. Most of those kidney transplantations were made in Moscow, Russian Federation. In the Federal Medical Biological Agency, University Hospital, 119 - Moscow, Russia in the reporting period, 18 kidney transplantations from deceased donors were performed in patients from Montenegro. In the Hematology Clinical Center of Moscow, Russia two kidney transplantations from deceased donors, and in the Institute NV Sklifosovskog, Moscow, one kidney transplantation from deceased donor was performed. One kidney transplantation from deceased donor was performed in Lyon, France, one in Vienna, Austria, and one in Turin, Italy. Two kidney transplantations from deceased donor, which was actually a double kidney and pancreas transplantation, were performed in the Clinical Center Merkur, Zagreb, Croatia, which had ESRD due to diabetic nephropathy as a consequence of diabetes mellitus type I. Since these patients had a double, Montenegrin and Croatian citizenship, they could be placed on the waiting list of Eurotransplant in Croatia.

Among the patients with kidney transplantation from Montenegro in the reporting period, there are 14 patients in whom kidney transplantations were performed in third world countries, where black market organs exist. In the absence of a living donor and deceased donor transplantation program, searching better quality of life, patients went on the black market of organs (India, Pakistan), where they had kidney transplantation. In this period, kidney transplantations from a living unrelated donor were performed in 12 patients in the Aalil Hospital Lahore in Pakistan and in 2 patients in the New Delhi Star Medical Center in India.

The first realized kidney transplantation from deceased donor in the Clinical Center of Montenegro was carried out on 8th of December 2013. Harvested organs were allocated according to the rules of Eurotransplant within the same network. Liver from deceased donor was allocated in the Clinical Center of Zagreb, and the heart was allocated in the Clinical Center of Ljubljana, Slovenia. After this Montenegro became a part of the Eurotransplant system. Based on the previously signed bilateral agreements on collaboration in the field of organ transplantation between Montenegro and Croatia, kidneys from deceased donors were allocated to patients who were on the waiting list for kidney transplantation in Montenegro, with the highest number of points scoring by the rules obtained by the Eurotransplant. One kidney, unfortunately, could not be used due to previous surgical treatment on that kidney, damaged by a high degree of fibrosis due to nephropexy.

In the observed period of 13 years, there were a total number of 118 patients with kidney transplantation, of which terminal graft dysfunction was found in 6 patients, and they restarted the chronic hemodialysis program while in the same period of follow-up, 6 patients died.

Four patients died with normal graft function (accidental death or due to other diseases), while two patients died after the allograft lost.

Since September 2012, 24 kidney transplantations were performed in the Clinical Center of Montenegro. In 2012, 2 kidney transplantations from living related donors were performed; 9 living related kidney transplantations were performed during 2013 as well as one transplantation from the deceased donor; eight kidney transplantations from living related donor were done during 2014 and four kidney transplantations during 2015.

Discussion

The population of ESRD patients is increasing globally. There were 2,876 million of ESRD patients at end of 2011, with an annual growth rate of 6-7% in the general population [1]. Organ transplantation has been one of the greatest medical achievements of the twentieth century, which has significantly improved the quality of life, prolonged life for hundreds and thousands of patients worldwide [2].

The incidence of transplantation was greater than 30 pmp in 2010 in Western Europe, USA and Australia [3]. Developing countries often have a low incidence of transplantation due to many factors including poor infrastructure and lack of educated medical staff. Organ transplantation is determined by individual national circumstances, which include:

1. legally established principles of transplantation medicine (standard operating protocols testing potential organ donors and recipients);
2. whether it is legally determined to be organ donors from? brain dead person (cadaver) or patients with cardiorespiratory death (NHBD - non-heart beating donors), or there is no regulation and legislation;
3. is there a waiting list of patients for transplantation to the compelling need of various organs;
4. the cost of health care;
5. the availability of organs for transplantation;
6. the level of technical capacity as well as the availability of organs for transplantation [4].

In the early 90s of the twentieth century transplantation tourism was in the focus, as an usual concept in the medical practice [5]. Medical tourism in general refers to patients who travel abroad for the purpose of obtaining

health services. Patients were traveling abroad because in their countries the particular type of treatment was not available or the quality of medical services was not appropriate. Medical tourism is a global phenomenon in the health care system and in 2006 for the purpose of medical tourism $60 million was spent in the world [6]. The problem itself is reflected in the new entities and special forms of medical tourism, such as transplantation tourism. World escalation in the number of patients with renal diseases, the increased demand for kidney transplantation, the lack of organs and dying patients on waiting lists has led to the phenomenon of transplant tourism [7].

The World Health Organization (WHO) in 2004 urged Member States "to take measures to protect the poorest and vulnerable groups from transplantation tourism and the sale of organs and tissues, paying attention to the issue of international sale of human organs and tissues" [8]. In order to respond to urgent and growing problems of organ sales, transplantation tourism in the context of the global shortage of organs the Summit in Istanbul was organized. The conclusions have been defined as the Istanbul Declaration. The basic principles of the Istanbul Declaration are: all states should have a legal and professional framework to govern organ donation and transplantation activities, as well as a transparent and orderly supervision, monitoring activities, which ensure the safety of the donor and recipient and enforcement of standards and prohibitions on unethical practices [9]. Transplant tourism has always been surrounded by controversy: where is the source of authority, care of donors after transplantation and transplant outcome [10]. Within the growing need to increase the number of transplantations, an insufficient number of altruistic transplantation has led to almost legalizing organ market as an incentive of organ donation. Transplant tourism coincides with high surgical complications, acute rejection of transplanted organs, the presence of severe infection as the most common cause of major morbidity and mortality in these patients. Transplant tourism is fueled by several factors, such as: deep gap between rich and poor people, easier way to travel, the globalization of the world as well as difficulties in securing legal principles. As key determinants of transplant tourism should be particularly emphasized the number of patients on waiting lists in developing countries, as well as those patients who are not on the waiting lists; people who mediate transplantation tourism (professionals: doctors, surgeons and unprofessional persons: sellers of organs, brokers, mediators in the sale of organs); countries exporting organs, and organ dealers [11-15]. Graft and patients survival after kidney transplantation performed in countries where there are black organ markets, upon their return, and follow-up in the home center was not significantly less according to most studies that have addressed this issue, but it is fraught with far greater number of serious complications after transplantation [16,17]. Survival of patients and grafts in patients in Montenegro, who had kidney transplantation as a result of transplantation tourism, was not statistically significantly lower compared to the results obtained from other systems and studies (mortality at 13-year follow up to 5.08%). However, it was associated with a large number of different complications that had to be treated in institutions of our health care system, both because of their complexity and seriousness.

Conclusion

The problems of transplantation medicine which have been related to all aspects (legal, medical and ethical) demanded a doctrine for the current period, which is based on the recommendations and principles of the Istanbul Declaration. The Istanbul Declaration seeks to promote and preserve humanity act of organ donation, a well-ordered state, clear legal regulation of the health care system and the need for further development of the best modalities of transplantation medicine guaranteeing a reduction in medical, and thus transplant tourism. Well-organized system of health care will provide the most important premise of scientific and medical postulates of transplantation medicine, which includes: continuing education of personnel, transparent waiting lists and adequate evaluation of the donor and recipient. Implementation of the law, with strict adherence to ethical principles and scientific doctrine and with adequate training of transplant experts are the main prerequisite for the development of modern and sophisticated transplantation medicine.

The establishment of transplantation programs in the health system of Montenegro ensures the safety of patients who need this type of treatment, controlled by the applicable protocols and principles of good medical and clinical practice, and provides avoiding of complications.

In parallel with the development of living related transplantation systematic and intensive work on developing a program to deceased donor transplantation must be organized and implemented, because it is the only solution for patients who do not have a living related organ donors, and for patients who are in the terminal organ failure who cannot be treated with transplantation from a living donor, such as patients with heart or liver failure. A lot has been done to create conditions for the beginning of this complex program in our health care system, but much more remains to be done.

Conflict of interest statement. None declared.

References

1. Fresenius Medical Care. ESRD patients in 2012. A Global perspective. [monograph on the internet]. Available from: www.visionfmc.com/files/pdf_2/ESRD_Patients_2012.pdf

2. IRODaT International Registry in Organ Donation and Transplantation. Preliminary numbers in 2013. [monograph on the internet]. Available from: http://www.irodat.org/
3. Metesanz R. International figures on organ, tissue and hematopoietic stem cell donation and transplantation activities. Documents Produced by the Council of Europe European Committee (partial agreement) on organ transplantation (CD-P-TO). Year 2012. *Newsletter Transplant* 2013; 1: 3-33.
4. Akoh JA. Key issues in transplant tourism. *World J Transplant* 2012; 2(1): 9 -18.
5. Evans RW. Ethnocentrism is an unacceptable rationale for health care policy: a critique of transplant tourism position statements. *Am J Transplant* 2008; 8: 1089-1095.
6. Chugh KS, Jha V. Problems and outcomes of living unrelated donor transplants in the developing countries. *Kidney Int* 2000; 57: S131-S135.
7. Pafford B. The third wave -medical tourism in the 21st century. *South Med J* 2009; 102: 810-813.
8. World Health Assembly Resolution 57,18. Human organ and tissue transplantation, May 22, 2004, http://www.who.int/gb/ebwha/pdf_files/WHA 57/A57_R18-EN.PDF
9. International Summit on Transplant Tourism and Organ Trafficking. The Declaration of Istanbul on Organ Trafficking and Transplant Tourism. *Clin J Am Soc Nephrol* 2008; 3(5): 1227-1231.
10. Delmonico FL. The development of the Declaration of Istanbul on Organ Trafficking and Transplant Tourism. *Nephrol Dial Transplant* 2008; 23: 3381-3382.
11. Epstein M. Sociological and ethical issues in transplant commercialism. *Curr Opin Organ Transplant* 2009; 14: 134-139.
12. Danovitch GM, Chapman J, Capron AM, *et al*. Organ trafficking and transplant tourism: the role of global professional ethivcal standards - the 2008 Declaration of Istanbul. *Transplantation* 2013; 95(11): 1306-1312.
13. Gill J, Madhira BR, Gjerston D, *et al*. Transplant tourism in the United States: a single - center experience. *Clin J Am Soc Nephrol* 2008; 3: 1820-1828.
14. Prasad GV, Shulka A, Huang M, *et al*. Outcomes of commercial renal transplantation: a Canadian experience. *Transplantation* 2006; 82: 1130-1135.
15. Canales MT, Kasiske BL, Rosenberg ME. Transplant tourism: outcomes of United States residents who undergo kidney transplantation overseas. *Transplantation* 2006; 82: 1658-1661.
16. Canales MT, Kasiske BL, Rosenberg ME. Transplant tourism: outcomes of United States residents who undergo kidney transplantation overseas. *Transplantation* 2006; 82: 1658-1661.
17. Naqvi SA, Rizvi SA, Zafar MN, *et al*. Health status and renal function evaluation of kidney venders: a report from Pakistan. *Am J Transplant* 2008; 8: 1444-1450.