

Kidney Transplantations in the Slovak Republic, Hungary and Austria

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Abstract:

This paper highlights the importance of kidney transplants with regard to cost and quality. Kidney transplants provide higher quality of life, freedom, and cost savings for patients compared with dialysis. The cost savings for health systems are also significant. In comparison to Austria and Hungary, Slovakia has the fewest kidney transplants per million population. This paper presents the value of prevention of end-stage

renal disease; donor education; increased living donor participation; decreased waitlist time. Throughout the entire European Union, The Netherlands has the highest number of living donor kidney transplants per million population. The Netherlands puts priority on living donors rather than deceased donors and actively approaches potential donors. An increase in the use of best practices in kidney transplants will present Slovakia and other countries in the region with better value health-care management options.

Introduction

Currently, 2% of the healthcare budget in Europe goes towards kidney failure, and the percentage is only expected to increase within the coming years (Kofler, 2012). Due to unhealthy diets and physical inactivity, the most common cause of end-stage renal disease is diabetes. At this time, there are about 60 million people in Europe with diabetes (World Health Organization, 2016). Individuals with end-stage renal disease can either choose to do a lifetime of dialysis or receive a kidney transplant. A kidney transplant is a surgical procedure in which a healthy kidney (whether from a living or deceased donor) is placed into a person whose kidneys no longer function properly. Compared to dialysis, kidney transplants significantly improve patient health outcomes; provide a higher quality of life; result in greater freedom for patients. In addition, receiving a kidney transplant saves patients about 17,000 euros per year versus dialysis.

Methods

Through a literature search and a discussion of the main findings with local experts during a visit to Slovakia, we compared the number of kidney transplants per million population (from both living and deceased donors) in the Slovak Republic versus the number in Hungary and Austria. Historical data was gathered and additional insights from healthcare professionals while traveling in Slovakia helped to refine our initial

search. With this information, we draw conclusions from the data and provide suggestions for opportunities for improvement.

Results

Historically, Austria has had the highest number of kidney transplants per million population (for both living and deceased donors) followed by Hungary and then Slovakia. All countries have low living donor numbers compared to donations from the deceased. As can be seen in **Figure 1** below, in the year 2013, Austria had 421 transplants per million population, Hungary had 291 and Slovakia had 119 kidney transplants per million population. When comparing these three countries to a poorer country such as Slovenia and a richer country like The Netherlands, there was more of a range in the number of transplants. The Netherlands has the highest number of kidney transplants with 954 and Slovenia had the lowest at 60 kidney transplants per million population (European Commission, 2014).

Discussion

In Slovakia, the National Transplant Organization (NTO) organizes and coordinates donations and transplantations. The National Transplant Organization was created in 2013 by the Ministry of Health in the Slovak Republic (Accord, 2016). The First Cadaveric Kidney Transplantation in the Slovak Republic was performed in June 1972 at the Department of Urology at the Dérer's

Hospital in Bratislava. There are four transplant centers in Slovakia and they are located in Bratislava, Banská Bystrica, Martin, and Košice. In Slovakia, the removal of kidneys is free and donors must be fully informed and consented. In order to be a living donor, you must be an adult blood relative, partner, or friend. They must have two healthy kidneys, and a similar blood type to the patient (National Transplant Organization, 2016). In addition, the donor must have a negative cross-match and absence of disease. Patients who receive a kidney transplant from a living donor have better kidney function start and longer kidney survival. There is no registry for people willing to donate. In Slovakia, there is only a registry for refusal of donation of organs, tissues, and cells after death. Slovakia believes that it is a right to be able to refuse organ donation. If refusing to donate, one must fill out a form and send it to the National Transplant Organization.

In Slovakia, there is an average wait of three years for a kidney transplant. There is a 93% survival rate one year following transplantation. There needs to be continuous follow-up after surgery and access to healthcare and social care. There are no rules concerning medical treatment after transplantation. One example of important rules that should be considered is that the patient's country of residence should not change after the transplant or during the treatment. According to Prihodova, (2014) the first three months after transplantation are considered to be the most problematic period. During this time, there is an increased rate of morbidity and mortality. Adherence to medication and proper follow-up care is essential to the success of a transplant.

The Eurotransplant Organization (ET) currently provides transplant coordination services in eight countries including Austria and Hungary. ET also services The

Netherlands, Belgium, Croatia, Germany, Luxembourg, and Slovenia. The first kidney transplant in Vienna, Austria was in 1965 (Margreiter R, Mühlbacher F. 2014). Currently, Austria has four transplant centers. The cost for a kidney transplant in Austria is €17,200 for the first 24 months and €12,900 from the 25th month and beyond. In contrast, dialysis costs a patient in Austria €43,600 the first 1-24 months and €40,600 from the 25th month and beyond (Haller M., Gutjahr G., Harnoncourt F., Kramar R., Oberbauer R. 2010). Living donors account for only 15% of donors in Austria.

The first kidney transplant in Hungary was in 1962 in Szeged (Asztalos *et al.* 2013). There are five transplant centers in Hungary. Austria, Hungary, and Slovakia all have presumed consent for donations by deceased donors. The ET support donations from deceased donors. As shown in **Figure 1**, of the countries included in this study and members of the ET, Austria has historically had the highest number of kidney transplants per million population (from both living and deceased donors), followed by Hungary. Slovakia has a lower number, and since it is not a current member of the ET, they do not provide specific information in their reports. All countries have low living donor numbers in comparison to donations from deceased donors. In 2013, Austria had 421 transplants per million population. Hungary had 291 and Slovakia had 119 kidney transplants per million population.

While traveling to Slovakia, there was a scheduled opportunity to present this research at the University of Trnava. Most of the students in attendance did not realize the topic of kidney transplantations was such an important issue for their country. Unfortunately, accessing articles in English on kidney transplants in Slovakia is difficult. The data found for transplants in Slovakia

was not as up-to-date as other countries within the European Union. Some articles and references were found on the research conducted recently by Dr. Lucia Prihodova on kidney transplantations in Košice, Slovakia. The authors made some unsuccessful attempts to contact her and schedule a possible conference or on-site meeting during the study abroad trip to Slovakia to learn more about her research and obtain additional information about transplants and her perspective of this topic.

Conclusion

Compared to Austria and Hungary, Slovakia has continually had the fewest kidney transplants per million population. In order to increase numbers of kidney transplants, Slovakia must address difficulties; exchange best practices with other countries; create an action plan (Conklin, 2008). The action plan may include engaging in more donor education; increasing living donor participation; decreasing waitlist times; providing routine pre-transplant counseling; follow-up care. Donor education is the most effective method to increase the number of transplants. Education on the criteria for donation will increase the number of living donors and waitlist time will then decrease.

Throughout the entire European Union, The Netherlands has the highest number of living donor kidney transplants 954 per million population. Unlike other countries, The Netherlands puts priority on living donors rather than deceased donors, and the nephrologists actively approach potential donors within the patient's family. In addition, The Netherlands only puts patients on the waitlist for donation if a suitable living donor cannot be identified. They also increased their number of transplant donor coordinators. Thus, pre-and post-transplant patient care has become more coordinated.

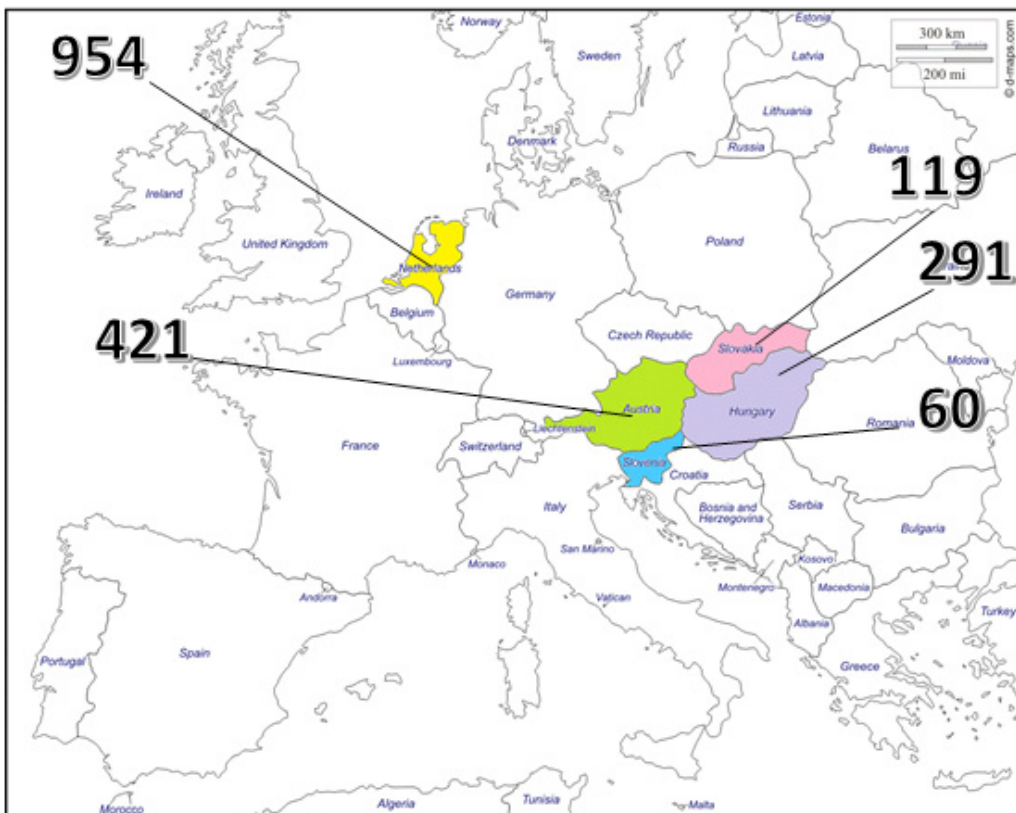
Slovakia should examine the best practices of other countries, including The Netherlands, to increase their number of kidney transplants. Furthermore, joining the ET could help Slovakia to increase the number of transplants as well as better coordinate transplant patient care. Donor education is essential for individuals to understand the risks and benefits of transplantation. Increasing the number of kidney transplants could help control healthcare spending on dialysis and improve the quality of life of patients with end-stage renal disease.

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Figure 1: Kidney Transplantations per Million Population in selected countries



Source: European Commission, 2014