

Addressing Barriers to Living Kidney Donation: Where Do We Stand

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Abstract:

Despite significant efforts to manage chronic kidney disease, its prevalence continues to rise. Patients who require dialysis experience higher rates of mortality and morbidity, making kidney transplantation the best available treatment for suitable candidates. It is crucial to tackle the challenges that can hinder kidney donation, particularly from living donors, to improve the transplantation process.

Many potential donors express concerns about the risk of future kidney failure and possible surgical complications after donation. Additionally, factors such as age, gender, and levels of education and awareness regarding kidney transplantation and donation play a role in these decisions. The impact of religious beliefs and cultural backgrounds is another area that warrants further investigation to understand its relationship with donation rates.

This article reviews the potential obstacles to living kidney donation and discusses strategies that may enhance the likelihood of kidney donations.

Key words: kidney transplantation; kidney donation; chronic kidney disease; hemodialysis

Introduction

Chronic Kidney Disease (CKD) poses a significant challenge to a wide range of health systems and economies worldwide. The increasing prevalence of diabetes and hypertension, coupled with sedentary lifestyles and inadequate preventive programs, has contributed to a growing population affected by CKD [1,2]. Cardiovascular disease, arrhythmia, and sudden cardiac death are the leading causes of mortality among patients with advanced CKD and those undergoing dialysis [3]. Kidney transplantation offers higher survival rates and improved quality of life compared to various dialysis methods. However, many potential kidney recipients face a critical shortage of available kidneys in different countries, resulting in prolonged waiting times and reduced survival rates [4]. This article aims to highlight the significant barriers to living kidney donation (LKD) and to propose strategies for increasing the likelihood of donations.

Since the first living kidney transplant in 1954, accumulated evidence demonstrates better graft survival and lower rejection rates for living donors compared to deceased donors [5,6]. Despite this, many dialysis

patients spend years on waiting lists, facing significant morbidity and mortality due to the high demand for available kidneys.

Various factors have been identified to affect the willingness to donate kidneys from living donors, including demographic, religious, and financial aspects. Additionally, differences in gender and age, as well as altruism and fear of complications, are considered as significant barriers. [7].

Barriers to living kidney donation:

The development of renal failure and the necessity for dialysis have raised concerns among many potential kidney donors, which may prevent otherwise healthy individuals from donating [8]. Although the risk of End Stage Renal Disease (ESRD) following nephrectomy in living kidney donors is comparable to that of the general population, there is a slightly increased risk when compared to healthy non-donors [9]. Typically, compensatory hyperfiltration in the remaining kidney mitigates the loss of renal function, restoring up to 70% of the glomerular filtration rate. To

assess the risk of future renal failure after LKD, the 2017 Kidney Disease Improving Global Outcome (KDIGO) guideline on kidney donor evaluation provides a tool to predict the future risks and the incidence of renal failure, which is considered as an objective measurement, that allows clear physician-patient discussion towards the real risks and incidence rate. [10]. This tool takes into account specific demographic and health characteristics that may increase the risk of ESRD in the absence of donation, alongside donation-related risk factors. Additionally, other tools have been reported to assist in anticipating the long-term risk of kidney failure following LKD [11].

Another significant concern for individuals during or after LKD is the potential surgical complications. Segev and his team estimate the three-month mortality rate among 80,000 living kidney donors from the Organ Procurement and Transplantation Network (OPTN) registry to be 0.03% [12]. Furthermore, the incidence of major complications reported in various studies is less than 3%, commonly reported complications, are wound infections, that might require re-operation, usually reported in individuals with higher Body Mass Index (BMI), and smokers, also risk of bleeding has been reported, and incisional hernias, that require re-operations few months after nephrectomy [13,14]. Using such informative reports to counsel potential donors can facilitate discussions, and has been endorsed by KDIGO.

Many studies in the literature have examined the factors that may enhance the willingness to donate a kidney. Knowledge about transplantation, educational level, and attitudes toward donation significantly influence this willingness. Individuals who are more informed about the donation process are more likely to become kidney donors. Additionally, higher educational levels are associated with increased willingness rate to

donation [15,16]. This is especially important for fostering a broad public effort to improve awareness and education regarding transplantation.

Additionally, the influence of age and gender as non-modifiable factors on the willingness to donation is also noted. While some studies indicate that older individuals are more likely to donate kidneys [17,18], other national surveys have found that younger age is associated with a greater inclination to donate [19]. Similarly, this applies to the role of gender as well. Males and females exhibit different attitudes toward donation. The data is inconsistent, but generally, females tend to show more empathy and a higher likelihood of donating [17].

Religion is another factor that may discourage otherwise healthy individuals from donating their kidneys. Most major religions, including Islam, Christianity, and Judaism, generally support donation and transplantation, with few exceptions regarding deceased renal transplantation [20]. However, there are varying opinions on religious stances within populations of the same region and faith. Previous studies from Saudi Arabia, a predominantly Islamic country, found that 20% to 30% of the study population were unaware of Islam's endorsement of kidney donation [16,19]. We believe that religious scholars and leaders have a significant responsibility to increase awareness and address many of the misconceptions surrounding this issue.

Other factors previously reported to influence the decision to donate include prompt medical evaluation and the avoidance of delays in the workup process, the familial relationship of the potential donor to the recipient, as well as financial stability and job security [7, 21]. Figure 1 illustrates several strategies that may enhance living kidney donation (LKD).

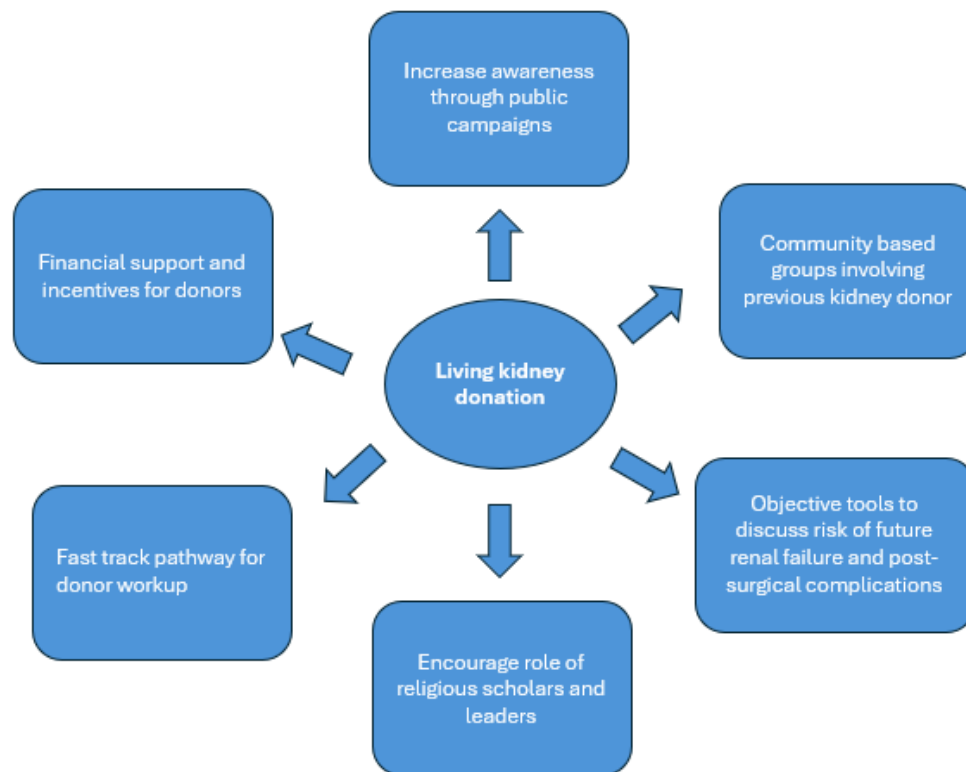


Figure 1: Strategies that increase likelihood of living kidney donation

Conclusion:

A kidney transplant is the best renal replacement therapy for patients with (ESRD). However, the limited number of available kidneys leads to

longer waiting times and poorer survival rates. Promoting living kidney donation by addressing the key barriers can increase the likelihood of donations and alleviate suffering for many patients. Raising awareness about the safety of donation and ensuring that potential donors receive

comprehensive social, medical, and financial support is likely the most effective way to achieve this goal.

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