

Living donor kidney transplantation:

often a missed opportunity

Kidney transplantation is the only treatment that provides a sustained cure for end stage renal failure (ESRF) and should be the treatment of choice for all eligible patients.¹ Dialysis is the alternative renal replacement therapy, but is associated with significant morbidity and increased mortality.² It also considerably impacts on patients' quality of life and carries a greater psychological and financial burden. Transplantation therefore provides significant survival benefit and improved health quality parameters.³ There are currently >5000 patients on the kidney transplant waiting list in the UK and the median waiting time for a kidney is just under 3 years.⁴ This results in patients being established on dialysis for some time prior to transplantation. Pre-emptive transplantation, prior to the requirement for dialysis, provides improved outcomes, and time on dialysis is therefore a potential modifiable risk factor to improve renal transplant outcomes.⁵

Living Donor Kidney Transplantation (LDKT) is a key treatment option for ESRF and currently comprises 28% of overall renal transplant activity in the UK.⁴ It offers the best outcomes in terms of patient and graft survival, particularly if performed pre-emptively. The rising prevalence of chronic kidney disease (CKD) mandates increased focus on strategies to improve uptake to reduce both the overall burden of disease and cost associated with dialysis.⁶ The latest annual report by NHS Blood and Transplant (NHSBT) on LDKT shows that the number of living donor transplants in the UK has plateaued over the last 8 consecutive years.⁷ In addition, there is a significant variation in access to LDKT across different regions of the UK, with eight transplants per million population in Bristol and Leeds compared to 36 transplants per million population in Belfast.⁷ There appear to be challenges to increase and standardise LDKT activity in the UK and solutions to this problem require further exploration. Unsurprisingly, poor education among healthcare providers, patients, and entire communities, form one of the greatest barriers to living donation.⁸

GPs are often the closest healthcare professionals (HCPs) to ESRF patients in their own community. As most living donors originate from patients' social networks, primary care practitioners may be well suited to overcome some barriers to promoting live donation, dispel myths and, critically, identify potential donors.

LDKT: CURRENT PRACTICE

LDKT is a well-established practice in the UK, with 23 centres offering an adult living donor service. It offers patients a planned procedure during daylight hours with a shorter hospital stay and quicker recovery compared to deceased donor kidney transplantation (DDKT), which is generally unplanned and frequently out-of-hours. LDKT offers a greater likelihood of patients being transplanted pre-dialysis, which is associated with better long-term outcomes and survival, with 40% of LDKTs performed pre-emptively compared to only 12% of DDKTs.^{4,5}

Despite established guidelines from NHSBT, the current LDKT process has significant inter-centre variation with little awareness about the process among most non-transplant practitioners. The UK guidelines for LDKT were last updated in March 2018 and summarise the evaluation process to ensure safe and best practice.⁹ The fundamental focus of donor assessment is to ensure a non-coerced, fully informed decision by the donor with no pecuniary or other incentives involved. The pathway is designed to assess the donor's compatibility to donate to the particular recipient and their overall health, with focus on kidney function and associated comorbidities. This pathway is initiated by a series of blood tests to check blood group and tissue compatibility, followed by radiological investigations to establish function and anatomy of the kidneys prior to the surgical procedure. Donor assessment involves various members of the multidisciplinary team, including a specialist nurse in living donation, nephrologist, surgeon, and psychologist. The process can be daunting and intense, particularly as most donors are previously healthy with little preceding direct contact with HCPs. Therefore, regular communication, education on the process, and emotional support is needed to minimise drop-out and improve donor experience.¹⁰ Once the donor and recipient pair is deemed medically and clinically suitable, an interview with an independent assessor (IA) is organised. Their role is to independently ensure there is no coercion, monetary reward, or other ethical contraindication to the donation, and they are independent of the direct clinical team. A report must be submitted to the Human Tissue Authority for approval before surgery can legally proceed.

Logistics around the day of surgery are planned together with the medical and

nursing team to minimise time between donor nephrectomy and implantation of the organ. The process is completed in a standard operating day with each procedure taking 2–3 hours of operating time. Donors undergo an enhanced recovery pathway with a hospital stay of 3–4 days and return to previous levels of general activity by 3 months.⁶

THE LIVING DONOR

It is paramount that all HCPs dealing with living donors appreciate that the physical health and psychological wellbeing of the donor takes precedence during the entire process. This commences from outset of the process and is particularly emphasised during the informed consent process. Counselling recipients and donors about the risks and benefits of living donation are key to maximising satisfaction and minimising the psychosocial impact of the process. As our understanding of the risks and benefits of donation has improved, the acceptance for donors has extended. The UK guidelines for LDKT state that age alone is not an absolute contraindication to donation. Furthermore, moderate obesity (BMI 30–35 kg/m²), well-controlled hypertension, or diabetes, while requiring thorough assessment, also do not preclude donation. With immunomodulatory therapies, HLA/ABO incompatible transplants are also possible, reducing the dependence on a donor being genetically related to the recipient. Finally, the UK Living Kidney Sharing Scheme has allowed donor-recipient pairs to exchange kidneys based on compatibility offering transplantation to patients who previously may have been excluded.⁹

There are inherent short-term risks associated with surgery, these have been minimised with laparoscopic nephrectomy as the standard technique. With this in mind, the current quoted mortality of the procedure is low at 0.03%.⁹ There has been significant recent focus on the long-term health risks of kidney donation. The Developing Education Science and Care for Renal Transplantation in European States group concluded that long-term risks such as the development of ESRF or hypertension are acceptably low;¹¹ this is backed up by follow-up data of 3028 living donors published by NHSBT showing a median serum creatinine of 93 mmol/L at 10 years post donation.⁷ However, long-term follow-up data from 1963–2007 in Norway has shown an increase in all-cause mortality among living donors when compared to a

Box 1. LDKT important facts

- Nearly 1000 living people donated a kidney last year; this number has been static for the last 8 years⁷
- Living donation can be directed (towards a specific recipient) and non-directed (towards the transplant waiting list)
- Among transplantation LDKT offers the best outcomes in terms of graft function and patient survival
- Elective nature of living donation allows a planned approach to surgery, which leads to a shorter hospital stay, less perioperative complications, and reduced costs
- Age, obesity, hypertension, and diabetes, while requiring thorough assessment are not absolute contraindications to donation
- The assessment process ensures the donor is medically safe to donate and there is no coercion, monetary reward, or ethical contraindication
- General practice may positively influence the service by raising awareness of the benefits of living donation and by helping patients with ESRF identify potential donors

control group of individuals who would have been eligible to donate.¹² This information is important to share with donors, with the caveat that donor selection, surgical technique, and follow-up, have continued to improve over time, and the true risks of donating a kidney today may only be known many years from now.

Crucially, by selecting those individuals with intrinsic low risk of long-term sequelae of undergoing a nephrectomy, we can continue to justify the principle of living donation. This is especially relevant in the context of tangible significant benefit of transplantation for recipients, their families, and the wider community.

POTENTIAL ROLE OF GENERAL PRACTICE

General practice is an integral and fundamental part of any healthcare system and involvement at all stages of a patient's pathway enhances care. ESRF, while devastating for any individual patient, impacts the patient's support network and family with similar consequences, particularly if the patient progresses to dialysis, which may require many hospital visits each week and frequent appointments. GPs are well positioned to positively impact on renal failure management. The message of transplantation as the primary treatment option for ESRF should be conveyed to patients and families, with dialysis being a bridge to transplantation if required. Most living donors know the recipient well and will be part of their personal social network. Therefore, it may be beneficial for recipients to discuss potential live donor options with a member of the practice team.

Although most HCPs working in nephrology and transplantation will be aware of the benefits of LDKT, the hospital clinic may not always be the appropriate setting to share complex information with significant social and psychological implications. Furthermore, most renal failure clinics include many interactions with members of the multidisciplinary team, resulting in the importance and time given to discussing living donation being reduced. A collaborative programme with GP practices, whereby renal transplant clinicians and/or previous donors and recipients discuss living donation in community settings, may be a better way to disseminate information and improve access to transplantation. To achieve the best possible outcomes for patients with ESRF and potential donors, the facts need to be shared clearly and unambiguously that clearly favour pre-emptive living donor kidney transplantation from well-informed, health-screened donors (Box 1).

Further information is available from Organ Donation and Transplantation (NHSBT): for clinicians — <https://www.odt.nhs.uk>; for patients — <https://www.organdonation.nhs.uk>. Information can also be found at Give a Kidney (charity) — <http://www.giveakidney.org> and at British Transplant Society Guidelines and Standards — <http://bts.org.uk/guidelinesstandards>

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Provenance

Commissioned; externally peer reviewed.

Competing interests

The authors have declared no competing interests.

DOI: <https://doi.org/10.3399/bjgp19X705173>

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