

Lower Mortality in Living Kidney Donors With ESRD Versus Matched Nondonors With ESRD



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Efforts to provide informed consent to individuals who are considering live kidney donation hinge on the risk of end-stage renal disease (ESRD). *De novo* kidney disease may sooner reach ESRD in donors than in healthy nondonors because nephrectomy represents a 50% reduction in nephron number, a 25% to 40% reduction in glomerular filtration rate, and as such, is a step closer to ESRD. Thus, the donor evaluation process is designed so that only individuals with the lowest risk of kidney disease are cleared for donation. However, despite the rigors of donor evaluation, a few donors subsequently develop ESRD; the transplantation community owes prompt and optimal care to this subgroup of donors for their great service and sacrifice. As of February 2013, the Organ Procurement and Transplant Network requires explicit disclosure in informed consent of potential donors about the allocation priority accorded to

donors if they become kidney transplantation candidates.¹ The same policy requires transplantation centers to follow-up with donors, albeit for only a mandatory 2 years after donation. Because ESRD in a healthy screened population typically evolves over several decades, this 2-year follow-up mandate may be of limited value in identifying donors who subsequently develop ESRD and in ensuring that they get optimal care.

Three US studies used national registry data to examine outcomes in donors who developed ESRD and to investigate the extent to which the transplantation community met its obligations to this population (Table 1). Potluri *et al.* observed higher rates of deceased donor transplantation (85% vs. 33%) for

donors compared with propensity score—matched nondonors, a lower median time to transplantation, higher quality allografts (median kidney donor risk index: 0.68 vs. median kidney donor risk: 0.90 for nondonors), and lower post-transplantation mortality than matched nondonors.² Muzaale *et al.* made similar observations but further noted that approximately 40% of donors who developed ESRD were never listed for a transplant, which is an observation that warrants further study to ascertain why these donors with ESRD never gained access to the waiting list.³ Wainright *et al.* examined the timing of listing relative to start of dialysis, activation of priority points on the waiting list, and requests for priority points relative to the listing date.⁴ They reported that only 40% of registrations were listed before they began dialysis, 68% were in inactive status for up to 90 days, 17.6% were in inactive status for 90 to 365 days, 8.6% were in inactive status for 1 to 2 years, and 5.4% were inactive for >2 years. However, after receiving priority, most were transplanted quickly. In sum, all 3 studies concluded that donors with ESRD experienced brief waiting times for kidney transplantation, received excellent quality kidneys, and experienced better survival compared with demographic and comorbidity-matched nondonors with ESRD.

Table 1. Registry-based studies that examined outcomes in live kidney donors who developed end-stage renal disease, United States 1994 to 2015

Study	Period	Donors with ESRD	Cohort studied		
			Dialysis	Waiting list	Transplanted
Potluri <i>et al.</i> , ² 2015	1996–2010 ^a	252		x	x
Muzaale <i>et al.</i> , ³ 2016	1994–2011 ^b	99	x	x	x
Wainright <i>et al.</i> , ⁴ 2016	2010–2015 ^c	210		x	
Brar <i>et al.</i> , ⁵ 2018	1995–2009 ^d	274	x		

ESRD, end-stage renal disease.
^aWaitlisted from 1996 to 2010.
^bDonated between 1994 to 2011.
^cWaitlisted from 2010 to 2015.
^dDialysis from 1995 to 2009.

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Brar *et al.* provided new insight into what determines the better survival in donors with ESRD compared with nondonors with ESRD.⁵ Using Kaplan-Meier methods, they showed that 10-year mortality in donors was 19% compared with 49% in a propensity score-matched cohort. With a time-dependent Cox proportional hazards model, they demonstrated a significantly lower mortality in donors compared with propensity score-matched nondonors 0 to 5 years from the start of dialysis (hazard ratio [HR]: 0.17; $P < 0.001$), 5 to 10 years from the year of dialysis (HR: 0.34; $P < 0.001$), and after 10 years on dialysis (HR: 0.5; $P = 0.2$). Better survival of donors was much more apparent in the early years of dialysis, but less so with prolonged time on dialysis. This is hardly surprising. Donors are better informed than nondonors about access to transplantation services because of their previous contact with the transplantation community. Thus, the median time from initiation of dialysis to listing is 17 months for donors compared with 120 months for nondonors.³ Donors receive very high priority on the

kidney waiting list and are transplanted with high-quality kidneys after a median of 2.8 months on the waitlist compared with 21.5 months for nondonors.³ Yet approximately 40% of donors who developed ESRD between 1994 and 2011 were never listed for transplantation, and thus, they never benefited from the priority status accorded to them.³ This subgroup of donors remained on dialysis for several years and experienced much higher mortality rates compared with donors who were listed for transplantation. These earlier observations might partly explain the key findings made by Brar *et al.*

Collectively, the works of Brar *et al.* and others reaffirm the beneficial impact of priority points assigned to donors. Although the study by Brar *et al.* may not be a novel study, it adds validity to the 3 previous studies on this important topic, and this information must be communicated to every prospective donor to ensure that all donors with ESRD gain access to the transplantation waitlist. The transplantation community treats live donors with dignity and respect long after they have donated but

only after they are “back in the system.”

DISCLOSURE

The author declared no competing interests.

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