Transplant International

INVITED COMMENTARY

All's well following living kidney donation?

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Transplant International 2017; 30: 972–974

Received: 3 June 2017; Accepted: 7 June 2017

We have known for two decades that kidney transplantation is superior to dialysis as kidney replacement therapy [1]. For 25 years, we have known that living donor transplantation is superior to deceased donor transplantation [2]. Kidney transplantation offers the recipient better health, better quality of life and longer life than maintenance dialysis. But what does kidney donation offer the living donor?

Our primary focus has been on physical health and harm of donors. Progressively sophisticated and rigorous analyses of outcomes are enabling us to better quantify and predict their future risk of kidney disease and eventually risk of comorbidities. Psychosocial health following donation is a long-standing concern as well, and in recent years, more rigorous analyses of this outcome have also been forthcoming.

Most evaluations of donor psychosocial health have been qualitative in nature. Many have been compromised by retrospective design, small sample size and variable response rate to simple questionnaires. In this issue, Maple *et al.* [3] report a single centre, prospective study of living kidney donors using an array of psychosocial outcome measures. This was done to approach a quantification of psychosocial outcomes following kidney donation, which might better inform both living donor transplant teams and potential living donors.

The investigators used 11 well-established psychosocial health questionnaires. Additionally, they devised a new questionnaire specific to living kidney donation, which they put through validity and reliability testing. The questionnaires were administered at three time points: predonation, and at 3 and 12 months postdonation. Of 115 individuals completing donor evaluation over a recent one-year period (2012–2013), 100 completed predonation questionnaires, 93 went on to donation, and 77 completed the questionnaires at all three time points. The 11 well-established questionnaires employed measured well-being, distress, mood, stress, physical health-related quality of life, life satisfaction, self-esteem, anxiety, social support, optimism and social comparison (self-perceptions of social rank and relative social standing). The eight-question new questionnaire specific to living kidney donation including questions regarding self-esteem, regret, praise from others and outlook on life.

Aside from a dip in the Short Form-12 Physical Health-Related Quality of Life score at 3 months (as might be expected), associated with older age and longer hospitalization, the 11 well-established questionnaires found no significant change in well-being over the year after donation. A worrisome finding of the Patient Health Questionnaire 2 (a screening tool for depression), although the increase in prevalence did not reach statistical significance, was that six donors met the cut-off score for possible clinical depression at 12 months, whereas at baseline, they did not.

In contrast to the overall lack of findings with the well-established questionnaires, their newly developed questionnaire specific to living kidney donation found

doi:10.1111/tri.13000

that most donors felt that donation had changed their outlook on life. This change correlated positively and significantly with their well-being, self-esteem and social comparison scores at 3 months postdonation.

Prior studies have shown a correlation between postdonation psychological outcome and the recipient's outcome following transplantation, but in the current day of generally excellent recipient outcomes, the study had insufficient numbers to detect differences related to failure of the transplant kidney ($n = 2$) and death of the recipient ($n = 1$). However, at 12 months, those who stated the recipient had suffered a complication were found to be in a lower mood. Of six donors offered referral to a clinical psychologist for postdonation psychological issues including low mood, two were seen, three were made appointments but did not follow through, and one declined referral.

An unsettling finding at 12 months was the response that approximately 11% would not choose to be a living donor again. There was no statistically significant correlation of this expression of regret with any of the demographic factors or any of the psychosocial measures. This is not a new finding and affirms the constancy over decades of the feeling of regret in a small percentage of donors.

Why was there no change in psychosocial health over the first year following kidney donation? As the authors suggest, perhaps the generic psychosocial measures are not specific enough for living kidney donation, or donors wish to maintain social desirability – they do not want to crow about they have done. An additional consideration is that the time frame of study was relatively short. The authors suggest a next step would be to initiate psychosocial evaluation from the time of initiation of potential donor evaluation to 5–10 years after donation.

The authors conclude that while their thorough assessment showed no improvement in psychosocial health, there was no evidence of harm. Donors feel good about what they have done, but perhaps any expectation of improvement in psychological health is unrealistic.

Of importance, the majority of the study participants were male (55%), White (82%), Christian or no religious beliefs (89%), college level education or higher (66%), employed/in education or self-employed (82%), and married or had a long-term partner (70%). Non-White participants were less likely to complete a follow-up questionnaire at both 3 months (53% vs. 96% White) and 12 months (65% vs. 87% White).

Living donor transplantation rates differ between ethnicities and between countries. Presumably its practice will increase until a new and better kidney replacement therapy evolves. Greater participation of many ethnicities and many countries in living donor transplantation can be anticipated. Consequently, study of living donor health, both physical and psychosocial, is a pressing need in all ethnicities and in countries where living donation is not common.

Additional recently highlighted issues in living donor kidney transplantation calling for further study include investigation of the link between predonation psychological functioning and long-term health-related quality of life following donation [4], study of those who opt out of living donation [3,5], and study of the tangible benefits to the interdependent donor (a donor whose well-being is closely tied to that of the recipient, e.g. a spousal donor) [6].

A half century following the acceptance of kidney transplantation as treatment for end-stage kidney disease, living donation still causes us unease. The comprehensive quantitative study of donor psychosocial health by Maple and colleagues reassures us about donor well-being in the short term. It renews our faith in living donation, but living donor transplantation is imperfect. We are indebted to the living kidney donor, whose motivation is personal but whose value is societal. Work remains to understand and ensure donor health.

Funding

The author has declared no funding.

Conflicts of interest

The author has declared no conflicts of interest.

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