Reduced kidney function in living kidney donors

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To the Editor: Recently Garg *et al.*[1] showed that reduced glomerular filtration rate (GFR) (<60 ml/min) occurred in 12% of living kidney donors within 10 years of donation, on the basis of studies measuring renal function using accepted clearance methods. In the UK, targeted screening for reduced renal function in various situations using the four-variable modification of diet in renal disease equation to give estimated GFR (eGFR) is being widely adopted.[2] We recently analyzed eGFR one year after living kidney donation in 72 consecutive donors at our centre between 2000 and 2005, who had isotopically measured GFR >80 ml/min/1.73 m^2 pre-donation (mean 103.4±15.6 ml/min/1.73 m^2). Mean serum creatinine (±s.d.) pre-donation was 90.2 (±15.1) μmol/l. One year after donation, mean serum creatinine was 118.6 (±19.9) μmol/l, consistent with the studies in the meta-analysis. However, this equated to a mean eGFR of 54.7 (±9.26) ml/min/1.73 m^2, resulting in 73.6% of donors with an eGFR <60 ml/min/1.73 m^2. A large proportion of living donors will therefore be labelled as having chronic kidney disease after donation. The difference between our data and the meta-analysis presumably relates to the validity of the modification of diet in renal disease formula in a healthy population with near-normal renal function, rather than to a true difference in renal function.[3] This is an important message for living donor transplantation. We now inform donors that they may be identified as having chronic kidney disease in the future, and we discuss the potential increased cardiovascular risk.[4] We agree that further research is required to determine if reduced renal function in living donors has the same implications as reduced renal function in patients with diseased kidneys.

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Response to 'Reduced kidney function in living donors'

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Wan *et al.*[1] highlight a number of important issues:

(a) **Donors have a decrement in glomerular filtration rate (GFR) after nephrectomy, and in many countries donors who develop an estimated GFR less than 60 ml/min/1.73 m^2 will be labeled as having chronic kidney disease (CKD).**

(b) **A greater portion of donors will be labeled with CKD by the abbreviated MDRD (modification of diet in renal disease) formula compared to a more precise measurement; in living donors, the MDRD formula underestimated true GFR assessed by iothalamate.[2]**

(c) **A label of CKD might affect a donor and recipient psychologically, and could affect a donor's future ability to obtain medical and life insurance.**

(d) **However, a label of CKD as assessed by GFR equations is beneficial if it identifies a segment of donors at substantial risk of future adverse events, prompting the use of cardiorenal protective therapies to reduce this risk.**

(e) **In the general population, the method by which CKD mediates cardiovascular disease is uncertain.[3] It may relate to the coexistence of CKD with other known cardiovascular risk factors such as hypertension, diabetes, and smoking. CKD may be a marker for the severity of these risk factors. CKD patients are less likely than others to receive effective cardiovascular medications. Finally, markers of inflammation, uric acid, and other putative factors become exaggerated with a decrement in GFR, and might contribute directly to adverse outcomes.**

(f) **Kidney donors develop a reduced GFR through a different mechanism, and the prognostic significance of a reduced estimated GFR in this population requires future study.**

(g) **Given the possibility of increases in blood pressure and reductions in GFR after donation,[4,5] it remains prudent to follow and screen all donors annually with blood pressure, serum creatinine, and urine protein measurements. Healthy lifestyle behaviors, which minimize the risk of future cardiovascular and renal sequelae, should also be emphasized.**

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