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Letter to the Editor

Long-Term Risks of Kidney Donation: Age Known

To the Editor:

We read with interest the editorial ''*Quantifying risk of kidney donation: The truth is not out there (yet)*'' by Drs. Kaplan and Ilahe (1). The editorial discusses our recent study in which we compared long-term mortality in living kidney donors versus a control group of individuals who would have been eligible for donation (2). We concluded from our findings that kidney donors are at increased long-term risk for both cardiovascular and all-cause mortality.

In paragraphs 3–5 and in Figure 1 of their editorial, Drs. Kaplan and Ilahe (1) argue that the difference in mortality between the living kidney donors and controls in our study was due to differences in age between the two groups. There seems to be a misunderstanding about the statistical methods used. They refer to differences in age at baseline, that is, before any adjustment or matching was performed.

In fact, we did adjust for baseline age in our study (2). We performed coarsened exact matching which is a method of matching where the user temporarily coarsen their data, match on these data, and run their analyses on matched uncoarsened data (3–5). The matching creates strata. Based on the number of observations in each stratum, and the proportion of donors and controls within each stratum, each observation will be weighted differently in the ensuing data analyses. There were 31 575 controls that were successfully matched. However, since these were weighted differently after matching, they did not contribute 1:1 of years of observation in the analyses. The essential point with number at risk for donors is if there are sufficient donors followed over an extended period of time, and as shown in our figure there are more than sufficient controls.

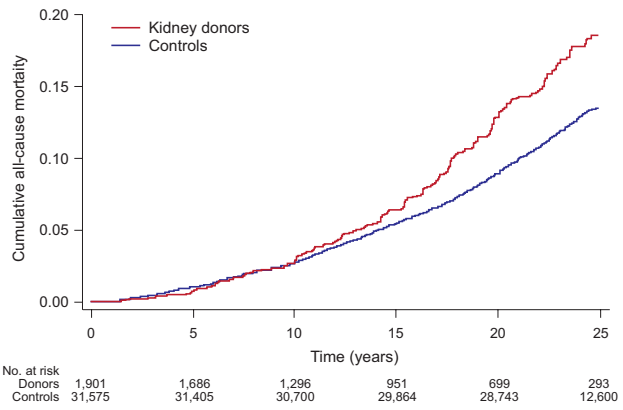

Figure 1: Cumulative mortality risk in kidney donors and controls adjusted for year of donation. Number of donors and controls are shown at different time points. Controls are matched to donors for age, sex, systolic blood pressure, BMI, and smoking status. Adapted with permission from Figure 2 in Ref. (2).

Survival analyses for the outcomes of end-stage renal disease, cardiovascular mortality and all-cause mortality were all adjusted for age, year of inclusion, gender, blood pressure, BMI and smoking. In addition, we pointed out in our paper that the survival curve demonstrating increased mortality in kidney donors is matched for important confounders, including age. After coarsened exact matching, mean age was 46 years for donors versus 45.7 years for controls.

In the figure we show the cumulative mortality rate with number of donors and controls at different time points.

Regarding our adjusted survival analysis, Drs. Kaplan and Ilahe comment that ''one cannot correct for age over such a long time span, as cumulative morbidities accrue in a co-linear fashion with age'' (p. 1716). This observation is duly noted. However, we are not aware of any alternative methods.

As with any observational study, we may struggle with unmeasured confounders, but age is not one of these.

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Disclosure

The authors of the manuscript have no conflicts of interest to disclose as described by the *American Journal of Transplantation*.

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