Long-Term Outcome of Kidney Donation in Older Donors

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Background:

- Living kidney donation is generally considered to be safe for donors.
- Recent years, kidney supply from deceased donors older than 50 years of age has increased markedly. However, most of previous studies focused on outcome of young kidney donors.
- This study investigated effects of age on the risks of health disorders developed in elderly kidney donors after donation.

Method:

- From January 1997 to December 2011, living Taiwan citizens who donated kidney were enrolled.
- Prospective population based cohort study by linkage nationwide health insurance database.
- Multiple variable Cox regression model addressed newly diagnosed hypertension, diabetes, acute renal failure, end stage renal disease, cardiovascular events and cancer after living kidney donation.

Results:

•From January 1997 to December 2011, 1069 living kidney donors were enrolled and classified by age: ≤34 years (n=404), 35-44 years (n=253), 45-54 years (n=285), ≥55 years (N=127). **(Table 1)**
•The incidence rate of hypertension, diabetes, cancer, acute renal failure, end stage renal disease, stroke, and coronary artery disease were 4.35, 13.3, 6.46, 4.26, 2.13, 4.14, and 2.14 per 1,000 person-years, respectively. The overall incidence rate of renal events, cancer, and cardiovascular events are higher in cohort of kidney donor with age ≥55 years compared with those age younger than 55 years-old.

Table 1. Comparison of demographic status and comorbidities among kidney donors at baseline

Age	≤34 years (N=404)		35-44 years (N=253)		45-55 years (N=285)		>55 years (N=127)		*p*-value
	n	%	n	%	n	%	n	%	
Mean (SD) †	25.6	6.3	40.2	2.79	49.7	2.95	59.9	4.37	**<0.001**
Sex									**0.03**
Female	187	46.3	142	56.1	158	55.1	61	48.8	
Male	217	53.6	111	43.9	127	44.6	64	51.2	

Chi-square test; †t-test; SD= standard deviation;

Table 2. Incidence of diabetes, hypertension, renal and CV events diagnosed among donors classified by age of ≤34 years, 35-44 years, 45-54 years, and ≥55 years.

	≤34 years (N=404)		35-44 years (N=253)		45-54 years (N=285)		≥55 years (N=127)		≤35-44 years to >34 years	45-54 years to >34 years	≥55 years to >34 years
Variables	**Event**	**IR**	**Event**	**IR**	**Event**	**IR**	**Event**	**IR**	Adjusted HR* (95% CI)		
Diabetes	0	0	9	8.89	12	9.9	6	13.3	-	-	-
Hypertension	1	0.88	2	1.92	12	9.75	2	4.35	2.12 (0.19, 23.5)	12.2 (1.57, 94.7)*	4.59(0.41, 51.4)
CAD	1	0.88	1	0.95	0	0	2	4.34	-	-	-
Stroke	1	0.88	0	0	3	2.42	1	2.15	-	-	4.79(0.41, 56.4)
CKD	0	0	0	0	0	0	1	2.13	-	-	-
ESRD	0	0	0	0	0	0	1	2.13	-	-	-
ARF	0	0	1	0.95	0	0	2	4.26	-	-	-
Cancer	1	0.88	2	1.89	4	3.21	3	6.46	2.29 (0.21, 25.4)	3.81 (0.42, 34.3)	7.60(0.77, 74.6)

CI=confidence interval; HR= hazard ratio by multiple analysis including sex; IR= incidence rate;
PY= per 1,000 person-years; *p<0.01, **p<0.001 Rate: case events/ per1000 person years

Conclusion:

- The long term outcome of living elderly kidney donors is not as good as young kidney donors.
- Clinicians should keep alert and close follow up for renal, metabolic, and cardiovascular disorders in elderly kidney donors.