

Abstract Type : Oral

Abstract Submission No. : PO-1647

Comparison of metabolic risk between living kidney donors and healthy controls according to era in South Korea

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Objectives: Considering rapid changes in lifestyle and chronic diseases in Korea, time-trend exploration and comparison of metabolic risk in live donors and healthy controls may help to estimate the future risk of live donors.

Methods: Live kidney donors in seven hospital of Korea from 1982 to 2018 were enrolled. To compare with donors, individuals receiving health check-up from 1995 to 2016 were included. Donors and healthy populations were matched for age, sex, baseline eGFR, and era. Trends of metabolic risk factors between donor and matched healthy control were compared according to the era by using logistic regression analyses with consideration of interaction terms on the era and kidney donation.

Results: The number of matched donors and healthy controls were 2,018, respectively. Over the 21 years, the proportion of hyperuricemia increased across the era in both donors (4.6% at 1995-2002, 11.5% at 2012-2016) and healthy controls (10.5% at 1995-2002, 15.7% at 2012-2016), respectively. Proportion of hypertension was gradually increased in both donors (7.2% at 1995-2002, 18.5% at 2012-2016) and matched controls (9.2% at 1995-2002, 24.6% at 2012-2016). Body mass index (BMI) $\geq 25\text{kg/m}^2$ was increased recently in the control group from 22.4% at 1995-2000 to 31.4% at 2012-2016, while no definite changes were observed in donors. Hyperlipidemia defined as total cholesterol $\geq 200\text{mg/dL}$ was gradually increased in both donors (32.9% at 1995-2000, 40.0% at 2012-2016) and controls (31.6% at 1995-2000, 48.5% at 2012-2016). The differences in the trends regarding hyperuricemia, hypertension, and hyperlipidemia between donors and matched controls were not observed, but the elevated trend of BMI $\geq 25\text{kg/m}^2$ was only observed in the control group.

Conclusions: Live kidney donors having metabolic risks tend to increase recently, but this trend was not different from matched healthy controls, except a lower proportion of obesity than controls.