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Predictors for renal outcome in living kidney donors : From data of Korean Organ Transplantation Registry

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Objectives: The safety of donors is one of the most important issues in living donor kidney transplantation. We investigated predictors of renal outcome in living kidney donors.

Methods: We analyzed data of kidney donors registered to a nationwide prospective registry, the Korean Organ Transplantation RegistrY, from May 2014 to December 2016. Among a total of 1,497 living kidney donors, 456 donors were followed up until 2 years with serum creatinine measurement after nephrectomy. We analyzed factors related to renal outcome of donors. Chronic kidney disease (CKD) was defined as estimated glomerular filtration rate (eGFR) < 60 ml/min/1.73m^2 or spot urine protein-to-creatinine ratio ≥ 150mg/g or spot urine microalbumin-to-creatinine ratio ≥ 30mg/g or 24-hour urine protein ≥ 150mg.

Results: At 2 years after kidney donation, CKD developed in 99 (21.7%) donors. Donors who had incident CKD were older (50.1±10.8 vs. 42.5±11.7 years-old), and more likely to have hypertension (12.1% vs. 5.0%), higher uric acid (5.4±1.5 vs. 4.9±1.4 mg/dL), higher glucose level (102±18 vs. 97±12 mg/dL), lower predonation eGFR (88±13 vs. 106±13 mL/min/1.73m^2) than subjects who did not develop CKD. The eGFR decreased 0.4±3.6 ml/min/1.73m^2 per year since nephrectomy in incident CKD group, while it increased 2.2±1.7 ml/min/1.73m^2 per year in non-CKD group (p=0.008). In multivariate logistic regression analysis, higher systolic blood pressure was associated with higher risk of CKD (OR, 1.322 per 10 mmHg increment; 95% CI, 1.036-1.686; p=0.025), and higher predonation eGFR (OR, 0.906 per 1 ml/min/1.73m^2 increment; 95% CI, 0.876-0.936; p<0.001) and higher ratio of eGFR at discharge to predonation eGFR (OR, 0.603,1 per 0.1 increment; 95% CI, 0.428-0.849; p=0.004) were related to lower risk of CKD.

Conclusions: Higher blood pressure was related to higher risk of CKD in kidney donors. Higher predonation eGFR and less decline of eGFR after nephrectomy were predictors for long-term preservation of renal function.