

## 생체 신장이식 공여자에서 일측성 신절제 후 잔여신 기능의 변화

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### The Change of Single Kidney Function in Kidney Donor after Uninephrectomy

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**Background:** Living kidney donation has been an important part for kidney transplantation. However it was not fully investigated how reserve capacity of single kidney for health kidney donor changes after unilateral nephrectomy. The aim of this study was to assess the change of remaining single kidney function after kidney donation and evaluate predictive pre-donation factor for reserved single kidney capacity in donors.

**Method:** Total 74 kidney donors who underwent 99mTc-DTPA Scintillation-Camera renography before and after kidney donation were included in this study. The renography measured single-kidney glomerular filtration rate (sk-GFR) of both kidney before donation and post-donation GFR of remaining kidney during 12 months in donor. We investigated the factors that are associated with reserved capacity of remaining single kidney after donation, such as age, BMI, BSA, serum creatinine for Cock-Croft Gault's formula and MDRD GFR, 24hr urine collection for creatinine clearance and kidney volume measured by abdomen CT.

**Result:** After uninephrectomy the mean of serum creatinine increased significantly ( $p=0.000$ , from 0.77 to 1.07 mg/dL) and the mean measured GFR by the renography declined ( $p=0.000$ , from 112.9 to 74.9 ml/min/1.73m<sup>2</sup>). Nevertheless the mean of serum creatinine and mGFR was stabilized during 12 months follow-up period (mGFR at Post-donation,  $p=0.165$  [6 month 74.9±18.2 vs 12 month 81.4±14.8 ml/min/1.73m<sup>2</sup>]). The sk-GFR of remaining kidney significantly increased by 33.6% after uninephrectomy (sk-GFR,  $p<0.01$  [Pre-nephrectomy 57.9 vs Post-nephrectomy 77.5 ml/min/1.73m<sup>2</sup>]). By univariate linear regression BMI, total mGFR, sk-GFR of remaining kidney and total kidney volume at pre-donation was included as independent predictors of change of sk-GFR. Among these, BMI ( $p=0.013$ ) and sk-GFR of remaining kidney at pre-donation ( $p=0.019$ ) was statistically related to reserved single kidney capacity in multivariate regression analysis.

**Conclusion:** After kidney donation, reserved single kidney capacity showed significant increase due to adaptive hyperfiltration, especially more compensatory response in donor with lower BMI and sk-GFR of remaining kidney at pre-donation.

**Key Words:** 잔여신 사구체여과율, Tc-DTPA신스캔, 신공여자

Single-kidney GFR, Tc-DTPA renal scan, Kidney donor