

신공여자의 수술전 요산수치가 공여후 신기능에 미치는 영향

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Association between Pre-donation Uric Acid Level and Post-donation Renal Function in Living Donors

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Previous studies have shown that hyperuricemia contributes to the progression of cardiovascular and renal diseases. However, the relationship of pre-donation uric acid level and post-donation renal adaptation in living kidney donors is yet to be studied. We investigated the association of preoperative uric acid level and the changes in renal function after donation in living kidney donors.

In this single-center study, we analyzed pre-donation uric acid level and the changes in renal function of 413 living kidney donors (2000–2008). Glomerular filtration rate (GFR) was estimated at baseline and 6 months after donation by using the abbreviated Modification in Diet and Renal Disease Study (MDRD) equation.

The mean age of donors was 40 ± 11 years and 206 donors (49.9%) were males. Mean uric acid level of all donors was 4.9 ± 1.4 mg/dl. Uric acid levels were >7 mg/dl in 29 male donors (14%) and >6 mg/dl in 4 female donors (2%). Mean estimated GFR decreased from 94 to 65 ml/min/1.73m² after donor nephrectomy. In 143 donors (34.6%), post-donation estimated GFR was lower than 60 ml/min/1.73m² at 6 months. Multiple regression analysis (model R²=0.47) showed that higher serum uric acid level was associated with larger deviation of estimated GFR (standardized coefficients $\beta = -0.10$, $p = 0.002$). Multiple logistic regression analysis showed that age (odds ratio 1.05, 95% confidence interval 1.03–1.08, $p < 0.001$), baseline estimated GFR (odds ratio 0.92, 95% confidence interval 0.89–0.94, $p < 0.001$), and baseline uric acid level (odds ratio 1.27, 95% confidence interval 1.05–1.53, $p = 0.01$) were associated with post-donation renal impairment (estimated GFR < 60 ml/min/1.73m² at 6 months after donation). Hyperuricemia (odds ratio 2.69, 95% confidence interval 1.10–6.57, $p = 0.03$) was an independent risk factor of post-donation renal impairment (estimated GFR < 60 ml/min/1.73m² at 6 month after donation).

Pre-donation uric acid level is an independent predictor of post-donation renal impairment. Further studies are needed to assess the underlying mechanism of the association of uric acid level and post-donation renal function, and the long term effect of pre-donation uric acid level on post-donation renal function.

Key Words: 요산, 신공여자, 사구체 여과율

Uric acid, Kidney donor, Glomerular filtration rate