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만성콩팥병 환자에서 혈중요산농도와 고혈압과의 관계

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Relationship between Serum Uric Acid and Hypertension in Patient with Chronic Kidney Disease

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Introduction: There was a report about the association of lower serum uric acid levels and morbidity of heart disease. There were few reports about the association of serum uric acid and morbidity of heart disease in patient with chronic kidney disease. Therefore we studied the association of hypertension, renal/heart function according to the serum uric acid level.

Method: Among KNOW-CKD patient cohort, we studied the association of hypertension, renal/heart function and serum uric acid levels in 550 patients who had test results of serum uric acid and GFR for 3 years. We analyzed those variables in 4 groups divided by the quartile range of serum uric acid.

Result: The serum uric acid was group I (≤ 5.6, 4.62±0.78 mg/dL), group II (5.6-6.9, 6.27±0.38 mg/dL), group III (6.9-8.1, 7.55±0.34 mg/dL), group IV (>8.1, 9.27±0.97 mg/dL). The higher the level of serum uric acid was, the higher the level of morbidity of obesity, diabetes, hypertension, triglyceride, C-reactive protein, Left Ventricular Mass Index (LVMI), urinary angiotensinogen was (all $p<0.05$). Also the higher the level of serum uric acid, the lower the level of GFR, the amount of 24 hours urinary uric acid was ($p<0.001$). There was no difference on the proportion of taking urate-lowering agent, ACEI, ARB and diuretics among groups. In multivariate analysis about the prevalence of hypertension, the level of coronary calcium score, ejection fraction, LVMI, urinary angiotensinogen with level of serum uric acid, we observed the increment of urinary angiotensinogen in group who have higher serum uric acid levels (>8 mg/dL) (β=9.37, R2 0.058, p=0.035). Also there was no difference on the decrement of renal function (defined by decrement of GFR 3 ml/min/year) among groups.

Conclusion: In patient with chronic kidney disease, we observed the increment of urinary angiotensinogen in group who have higher serum uric acid levels, so we might present the association of the hypertension and serum uric acid. We thought that long-term studies were needed for discovering the association of hypertension, renal/heart function and serum uric acid.

Key Words: 만성콩팥병, 요산, 심장기능
Chronic kidney disease, Serum uric acid, Heart function