

만성신부전 3, 4기 환자에서 페복소스테트의 신기능 보호 효과

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The Effects of Febuxostat in the Perspective of Kidney Function in CKD 3, 4 Patients

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Background and Objective: Hyperuricemia is a risk of chronic kidney disease (CKD) and is significantly associated with the progression of CKD. Allopurinol has been used to treat hyperuricemia. As metabolites of allopurinol is excreted almost by the kidneys and easily accumulated in the kidneys with toxicity, allopurinol is hard to use in impaired renal function. Febuxostat introduced for hyperuricemia, recently is a xanthine oxidase inhibitor and is available with impaired renal function due to multiple excretion pathways. We studied to evaluate the effects of febuxostat in the perspective of kidney function and compared with allopurinol effects in non-diabetic CKD 3, 4 patients.

Material and methods: In this retrospective, observational study, a total 31 non-diabetic men were enrolled and they took febuxostat at least for 1 year. All patients were in the stage of CKD3, 4 and 19 subjects of them had drug changing histories from allopurinol to febuxostat one year ago at the start point of analysis. Serum uric acid levels and serum creatinine levels were collected and eGFR was expressed through a CKD-EPI equation.

Results: Mean follow up duration was 578 days. Mean serum uric acid concentration before and after switching febuxostat was 7.9 ± 2.1 mg/dL and 4.79 ± 1.5 mg/dL. 28 patients (90.3%) achieved a level of ≤ 6 mg/dL at the final visit. Mean eGFR before and after switching febuxostat were 35.1 ± 11.1 and 41.7 ± 11.2 ml/min/1.73m². The change of eGFR per year was 4.02 ± 4.98 ml/min/1.73m². The kidney function was preserved in 25 patients (80.6%) and the changes of eGFR were more than 0 ml/min/1.73m². Among 31 patients, 19 patients had treated with allopurinol at least for 1 year before switched to febuxostat. Almost of them (18/19) switched from allopurinol to febuxostat due to failing to achieve serum uric acid concentration ≤ 6 mg/dL. There was a significantly protective effect for kidney function at febuxostat treatment era compared to allopurinol treatment era (4.54 ± 3.67 vs. -3.74 ± 4.85 ml/min/1.73 m², $p=0.001$). However, there was no significant relationship between uric acid changes and eGFR changes. In the perspective of safety, there was no adverse effect related with febuxostat treatment.

Conclusion: Febuxostat reduced serum uric acid concentration effectively and preserved the kidney function in CKD3, 4 patients compared with allopurinol treatment.

Key Words: 페복소스테트, 알로퓨리놀, 만성신부전
Febuxostat, Allopurinol, Chronic kidney disease