F-E1

상염색체우성 다낭신 환자에서 조기 질병 바이오마커로의 요중 안지오텐시노겐/크레아티닌 비의 유용성

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Urinary Angiotensinogen to Creatinine Ratio (AGT/Cr) is an Early Biomarker of Disease Progression in Autosomal Dominant Polycystic Kidney Disease

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Autosomal dominant polycystic kidney disease (ADPKD) patients develop hypertension earlier than the essential hypertensive patients, and urinary angiotensinogen to creatinine ratio (AGT/Cr) was reported to be increased in ADPKD population. However, whether AGT/Cr is a specific biomarker of ADPKD progression is not known. This study was performed to measure urinary AGT/Cr in KNOW-CKD subcohorts according to primary renal disease (Glomerulonephritis (GN), diabetic nephropathy (DN), hypertensive nephropathy (HTN), ADPKD) and demonstrate its usefulness as a specific biomarker in ADPKD patients. Nine nephrology centers in Korea recruited adult subjects with chronic kidney disease (CKD) and classified into subgroups according to primary renal disease. First-voided morning urine was collected from all patients upon enrollment and stored at -80℃ until measurement. Urinary AGT was measured by commercial sandwich enzyme-linked immunosorbent assay (ELISA) (Immuno-Biological Laboratories, Co., Ltd., Gunma, Japan). To compensate for the production of concentrated or dilute urine samples, the urinary biomarker levels were expressed based on urinary Cr content. Mean urinary AGT/Cr levels and associated factors were compared among CKD subgroups. A total of 1528 adult patients with chronic kidney disease (CKD) were enrolled from April 2011 to December 2013. Among them, 512 patients were excluded from the analysis due to following reasons: 73 with unclassified subgroups, 71 without urinary AGT measurement, and 368 with out-of-range measurement. Therefore, a total of 1015 (398 GN, 209 DN, 200 HTN, 208 ADPKD) patients were included in the final analysis. The mean age was 53 years and DN (59.9±9.2 years) and HTN (59.6±10.8 year) subjects consist older population compared to GN (48.8±12.7) and ADPKD (46.3±10.6) subgroups. The median urinary AGT was 6.11 μg/g (Interquartile range [IQR], 1.82-19.88). Urinary AGT/Cr level was elevated the most in DN subcohort (30.3±58.6 μg/g) and the least in ADPKD subcohort (13.4±28.1 μg/g). Overall, urinary AGT/Cr levels increased as CKD stage progressed. However, unlike other subcohort, urinary AGT/Cr level was gradually increased from CKD stage I to IIIa and subsequently decreased in the later stage in ADPKD subcohort. In DN and HTN subcohorts, urinary AGT/Cr was significantly increased in CKD stage I compared to GN and ADPKD subcohorts. Urinary AGT/Cr is an early biomarker for disease progression in ADPKD.

Key Words: 상염색체우성다낭신, 안지오텐시노겐, 고혈압
Polycystic kidney, Angiotensinogen, Hypertension