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The baseline characteristics of the ADPKD sub-cohort in the Korean Cohort Study for Outcomes in Patients with Chronic Kidney Disease (KNOW-CKD)

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Objectives : The Korean Cohort Study for Outcomes in Patients with Chronic Kidney Disease (KNOW-CKD) is the largest prospective chronic kidney disease (CKD) cohort in Korea. The autosomal dominant polycystic kidney disease (ADPKD) sub-cohort was constructed to clarify the natural course of ADPKD in Korean patients, to confirm the usefulness of conventional clinical parameters and radiologic imaging to track the clinical progression of the condition, and to investigate novel biomarkers. This study was conducted to summarize the baseline characteristics of the ADPKD subjects in the KNOW-CKD cohort.

Methods : The ADPKD sub-cohort consisted of patients from 9 centers in Korea, and patients aged between 20 and 75 years with CKD from stage 1 to 5 (predialysis) were recruited from 2011 through 2015. Information regarding demographic factors, laboratory tests, cardiac evaluations, and radiologic imaging, including biannual total kidney and liver volume, were collected according to a standardized protocol.

Results : A total of 364 subjects were recruited, with a mean age of 47.0 ± 10.6 years. Men comprised 50.5% of the sub-cohort. The mean CKD-Modification of Diet in Renal Disease (CKD-MDRD) estimated glomerular filtration rate (eGFR) was 68.1 ± 33.3 mL/min/1.73 m². Most patients were initially asymptomatic (55.8%), and the next most common initial symptoms were pain (13%) and mass sensation (4%). The frequency of hyperuricemia was 45.2%, and was most prevalent in males. Asymptomatic pyuria was found in 22.3% of subjects, and microscopic hematuria in 13.9%. Urine osmolarity decreased with age and higher CKD stage. Hypertension (86.3%) was the most prevalent renal complication, followed by hemorrhagic cysts (55.9%), urinary stones (20.1%) and renal cyst infection (6.0%). Liver cysts (81.5%) were the most common

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extrarenal manifestation, and the incidence of cerebrovascular complications, including unruptured aneurysms, was 10.2%. Total kidney volume (TKV) was inversely related with the eGFR, and this trend was stronger in males. The factors that correlated with the MDRD eGFR were age ($r=-0.50$), hemoglobin ($r=0.38$), serum uric acid ($r=-0.55$), 24-hour urinary uric acid ($r=0.28$), urine albumin-to-creatinine ratio ($r=-0.56$), brachial-ankle pulse wave velocity (baPWV) ($r=-0.29$), left ventricular mass index (LVMI) ($r=-0.21$), and high-sensitivity C-reactive protein (hs-CRP) ($r=-0.20$).

Conclusions : TKV, laboratory findings such as uric acid and hemoglobin, hs-CRP, and cardiac parameters like baPWV, LVMI were correlated with the eGFR. The current study provided a better understanding of the natural course and complications of ADPKD in Korean patients.

Keywords : Chronic Kidney Disease, Autosomal Dominant Polycystic Kidney Disease