

KSN 2017 Abstract

Design and Major Findings of KNOW–PedCKD

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In children, chronic kidney disease (CKD) exhibits unique etiologies and can have serious impacts on children's growth and development. Therefore, an aggressive approach to preventing the progression of CKD and its complications is imperative. To improve the understanding and management of Asian pediatric patients with CKD, we designed and launched KNOW–Ped CKD (KoreaN cohort study for Outcome in patients With Pediatric Chronic Kidney Disease), a nationwide, prospective, and observational cohort study of pediatric CKD with funding from the Korean government. From seven major centers, 458 children (M:F 310:148, mean age 9.9 years) of age with CKD stages I to V were recruited for the comprehensive assessment of clinical findings, structured follow-up, and bio-specimen collection. Glomerular filtration rate was estimated using bedside CKiD, modified Schwartz formula. The primary endpoints include CKD progression, defined as a decline of estimated glomerular filtration rate by 50%, and a requirement for renal replacement therapy or death. The secondary outcomes include the development of left ventricular hypertrophy or hypertension, impairment of growth, neuropsychological status, behavioral status, kidney growth, and quality of life.

Major etiologies of CKD were congenital anomaly of Kidney and urinary tract (CAKUT) in 56% and glomerulopathy in 28%. Teenagers comprised 46.5% of the population, while 9.4% were younger than 2 years, 16.8 % were 2~5years, and 27.3% were 6~11 years. CKD stages were I for 15.5%, II for 26.9%, IIIa for 15%, IIIb for 16.6%, IV for 19%, and V for 6.3%. CAKUT was more common in male, younger patients and advanced CKD. More than 32% of the patients had hypertension, and left cardiac ventricular hypertrophy was found in 6.8–41%

depending on the criteria. Dyslipidemia was found in 48.8%, while only 5.2% of the patients were prescribed lipid-lowering agents. Hyperuricemia was found in 51.5%. Hyperparathyroidism was observed in stage III to V and vitamin D deficiency was found in 40% of the patients regardless of CKD stages. Forty percent of the patients had anemia and 32% had iron deficiency, while only 21% of the patients were prescribed with iron supplementation and 10% with recombinant erythropoietin agents. Mean height Z score was -0.91 ± 1.56 , with 22% of the subjects having growth impairment. Quality of life score was 74 ~ 77 in averages and intelligent quotient was 93.84 ± 19.67 when measured. These baseline characteristics will be followed for more than five years, up to 9 years. With this study, we expect to obtain more information on pediatric CKD, which can be translated to better management for the patients.