Acquired cystic kidney disease in children and young adults undergoing dialysis

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Objectives: Acquired cystic kidney disease (ACKD) describes bilateral cystic degeneration of the kidneys in patients who do not have hereditary cystic diseases. It is known as a common complication of end-stage renal disease (ESRD) in adults, however pediatric studies were scarce. We aimed to determine the prevalence and complications of ACKD in children and young adults undergoing maintenance dialysis.

Methods: We retrospectively reviewed the medical records of ESRD patients who were followed at Seoul National University Children's Hospital in 2017. We enrolled a patient if he/she had taken kidney imaging of ultrasonography or computer tomography after initiating maintenance dialysis. Patients with hereditary cystic disease were excluded.

Results: A total of 46 patients (male:female = 25:21) were enrolled. Causes of ESRD were glomerulonephritis in 16 (34.8%), congenital anomalies of the kidney and the urinary tract in 11 (23.9%), hereditary nephropathy in 7 (15.2%), and miscellaneous in 12 (26.1%). Maintenance renal replacement therapy was required at their mean age of 10.2 ± 5.8 years old. Thirty six (78.3%) patients were on peritoneal dialysis, and 10 (21.7%) on hemodialysis. ACKD was found in 27 (58.7%). At initiation of maintenance dialysis, 7 already had multiple cysts (25.9%) and 2 had solitary cyst (9.4%). In the rest, ACKD was noticed when they were on maintenance dialysis for 3.8 ± 3.1 years. Three had serious complications of ACKD; Two had renal cell carcinomas, and 1 experienced massive hemorrhage from cystic rupture of her ACKD. When patients with ACKD were compared with those without ACKD, there were no difference in sex, age of dialysis initiation, dialysis modality, or cause of ESRD.

Conclusions: ACKD complicates ESRD of children and young adults as well. Since ACKD may accompany serious complications such as malignancy and hemorrhage, routine surveillance is necessary also in pediatric population on maintenance dialysis.