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## **Acquired cystic kidney disease is prevalent among children with kidney failure: A territory-wide cross-sectional study**

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**Objectives :** To evaluate the incidence, associated factors and clinical outcomes of acquired cystic kidney disease (ACKD) in children with kidney failure in Hong Kong.

**Methods :** We conducted a cross-sectional study at the Paediatric Nephrology Centre, the designated tertiary centre providing kidney replacement therapy for all children aged 0 to 18 years old in Hong Kong. ACKD was defined as 3 or more cysts in the kidneys, without hereditary cystic disease. From June 2023 to December 2023, we offered ultrasound and plain magnetic resonance imaging (MRI) native kidneys for all active patients to evaluate the incidence, associated factors, and outcomes. For complex cysts, computed tomography (CT) was arranged to delineate the cyst structure. Cyst were graded according to Bosniak staging.

**Results :** Fifty children (48% male; median age 15.1, IQR: 12.3-18.7) were included. The incidence of ACKD were 23 out of 50 children (46%). 11 patients had simple cysts (22%); 12 patients had complex cysts (24%). For complex cysts, 8 patients were grade 2 (16%), 2 patients were grade 2F (4%), 2 patients were grade 3 (4%). Twenty (91%) of ACKD patients were asymptomatic, two patients (8%) had back pain and haematuria. For complications, one patient (5%) developed infected cyst and renal cell carcinoma. 16 (69.6%) ACKD patients had history of kidney transplant. Multivariate analysis showed duration of dialysis for  $\geq 28$  months was the only predictive factor for developing ACKD (odds ratio 5.39, 95% CI 1.47 to 19.81,  $p = 0.011$ ). Of note, older patients at kidney replacement therapy initiation are associated with complex ACKD.

**Conclusions :** ACKD is prevalent among children and adolescent with kidney failure. Longer duration of dialysis was the only predictive factor for developing ACKD. The condition is mostly asymptomatic but may lead to serious complications. Hence, active surveillance for ACKD in all children with kidney failure should be performed.