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Pediatric Dialysis Care: A Brief Update

By Shweta Shah and Sarah J. Swartz

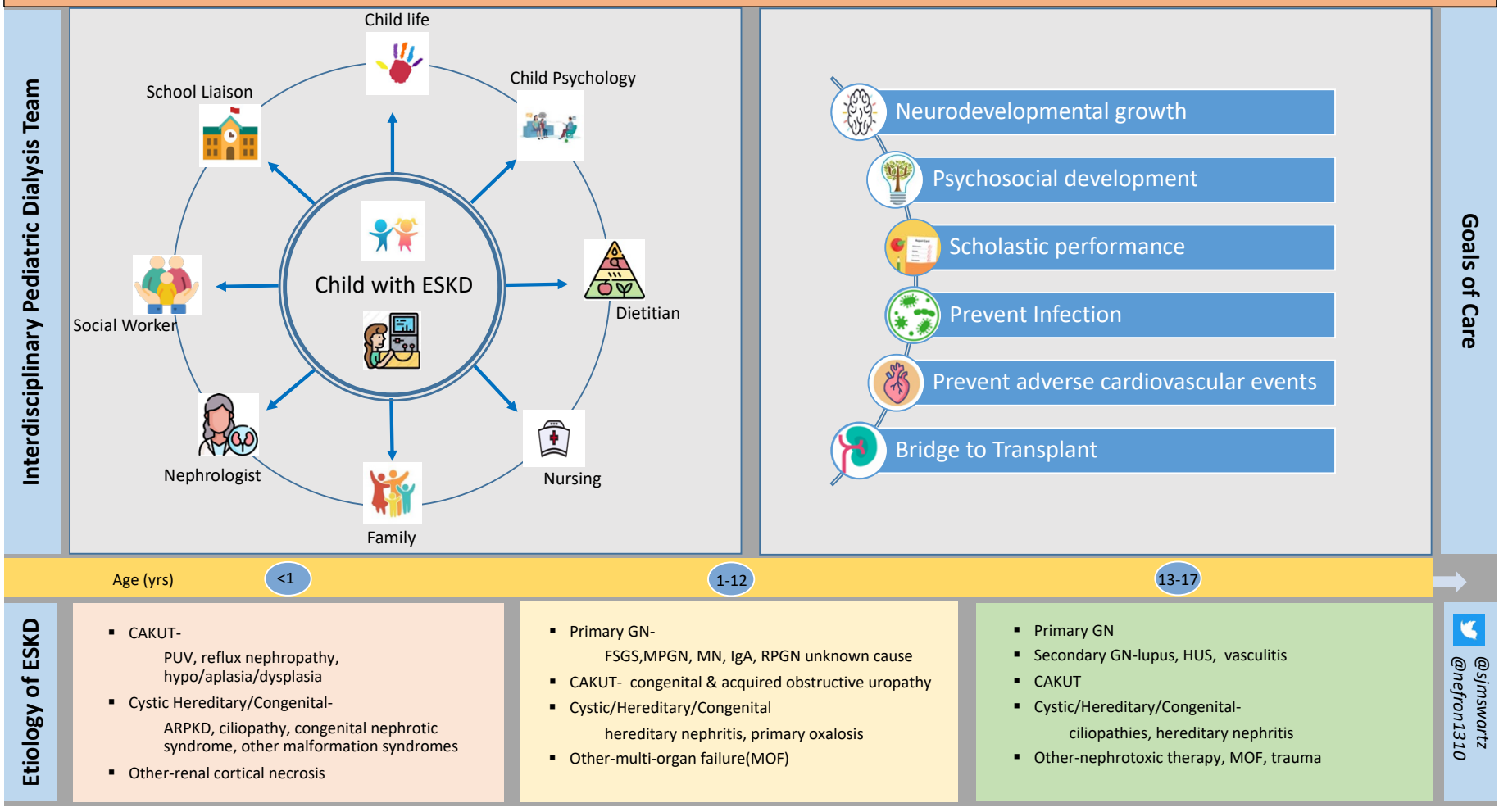
Although the number of children with end-stage kidney disease (ESKD) is small compared to adults, their management can pose a unique challenge due to variability in size and their complex medical, growth, and maturational needs, as well as caregiver involvement. The adjusted incidence of ESKD in children has remained relatively unchanged from 2014 to 2018, ~11.5 per million population, whereas prevalence has increased, with close to 71% of the pediatric ESKD population receiving kidney transplant (1). Racial disparities are noted in modality of treatment, with White children twice as likely to receive a kidney transplant as Black children, and the latter more likely to receive hemodialysis (HD) over peritoneal dialysis (PD). Hispanic-Latino children are also less likely to receive kidney transplant and initiate HD more often than PD compared to non-Hispanic children.

Congenital abnormalities of the kidney and urinary tract (CAKUT) remain the primary etiology for kidney failure in infants and young children, whereas etiology is more varied in the adolescent age group, with a higher prevalence of glomerulonephritis and tubulointerstitial diseases. In comparison, diabetes, neoplasms and tumors, and hypertensive/large vessel disease are relatively uncommon causes of incident ESKD in children (1). Adjusted mortality has declined in recent years, with the primary cause of death being cardiovascular disease (25%) followed by infection (13.3%). Hard cardiovascular endpoints (such as stroke, myocardial infarction, and death) have low incidence in the pediatric ESKD population; therefore, surrogate markers like left-ventricular hypertrophy, pulse-wave velocity, and carotid-intimal thickness are often used in outcome-based research studies (2).

The prevention of infection is imperative for children on dialysis. Infections are not only a leading cause of mortality for children with ESKD but also lead to increased morbidity, posing an important risk factor for PD failure or the need for HD access replacement with potential loss of a vascular access site.

Focused on increasing implementation of standardized best care practices initially for pediatric PD patients and later pediatric HD patients, the Standardizing Care to Improve Outcomes in Pediatric End Stage Renal Disease (SCOPE)

Figure 1. Pediatric Dialysis Care: A Brief Update



PUV, posterior urethral valve; ARPKD, autosomal-recessive polycystic kidney disease; GN, glomerulonephritis; FSGS, focal segmental glomerulosclerosis; MPGN, membrano proliferative GN; MN, membranous nephropathy; IgA, immunoglobulin A; RPGN, rapidly progressive GN; HUS, hemolytic uremic syndrome.

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