Developed by: ANNA Specialty Practice Networks

Pediatric Chronic Kidney Disease

Chronic Kidney Disease: What Is It?

Chronic kidney disease (CKD) in children may occur because of congenital malformation or systemic disease. It is characterized by a slow, irreversible, and often silent deterioration of kidney function. CKD is often undiagnosed until the signs and symptoms related to the loss of kidney function occur. This disease can affect every aspect of the child's life as the kidney failure progresses over a period of months or years. Affected children will need dialysis and/or a kidney transplant as their kidney failure progresses to end stage.

Glomerular Filtration Rate (GFR) Categories in CKD

Stage	Description	GFR (mL/min/1.73m2)
Stage 1	1 Kidney damage with normal or ↑	GFR ≥ 90
Stage 2	Kidney damage with mild ↓ GFR	60-89
Stage 3a	Mild to Moderate ↓ GFR	45-59
Stage 3b	Moderate to severe ↓ GFR	30-44
Stage 4	Severe ↓ GFR	15-19
Stage 5	Kidney Failure	< 15 (or dialysis)

Signs and Symptoms: What to Look For

- Decreased energy, difficulty concentrating, and changes in school performance.
- Nausea, vomiting, loss of appetite, weight loss.
- Pallor, fatigue.
- Headache, high blood pressure, incontinence, urinary frequency.
- Poor growth, not growing as fast as peers.

Common Medications Used in Treatment

- Iron preparations: To treat iron deficiency anemia.
- Calcium supplements/phosphate binders: To help decrease high phosphorus levels in the blood and treat renal bone disease. Usually taken with meals.
- Vitamin D or calcitriol: To treat and prevent bone disease.
- Antihypertensives: To control high blood pressure.
- Human growth hormone/HGH: Long-term treatment of growth failure; given as a subcutaneous injection.
- Erythropoietin-stimulating agents: To promote red blood cell production; given as a subcutaneous injection.
- Bicarbonate supplements: To treat metabolic acidosis, help control bone disease, and optimize growth

Nutritional Considerations

Nutritional needs for the child with CKD often change as kidney function declines. Many children with inadequate caloric intake require nutritional supplements either orally or by NG or G-tube. A renal dietitian will develop an individualized diet program for these children and work with the renal team to monitor growth and laboratory values.

Reference

KDIGO. (2024). KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. *Kidney International Supplements, 105*(45), S177-S314. https://kdigo.org/wp-content/uploads/2024/03/KDIGO-2024-CKD-Guideline.pdf

ANNA
American Nephrology Nurses Association

ANNA Mission Statement

ANNA improves members' lives through education, advocacy, networking, and science.

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