

NEPHROLOGY - II

PEDIATRIC CHRONIC KIDNEY DISEASE

***Kalaivani Ganesan**
****Arpitha KR**

Abstract: Chronic kidney disease is a major health problem but relatively uncommon in children. It can be devastating with many long-term consequences like cardiovascular complications. Chronic kidney disease not only affects the child's health, but has a lasting effect into health in adulthood as well. Limited data are available on chronic kidney disease and end stage kidney disease in children. Despite major scientific advancements with substantial developments in the care of children with chronic kidney disease, some children will still progress adversely with the disease and require kidney replacement therapy. This article discusses about the etiopathogenesis, clinical features, complications and management including strategies to slow the progression of pediatric chronic kidney disease.

Keywords: End stage kidney disease, Proteinuria, Hypertension, Kidney replacement therapy, Chronic kidney disease.

Points to Remember

- *KDIGO 2024 clinical practice guidelines defines CKD as abnormalities of kidney structure or function, present for a minimum of three months, with implications for health.*
- *Clinical manifestations of CKD in children depends on the stage of CKD and etiology.*
- *Risk factors for CKD are classified as modifiable and non-modifiable risk factors.*
- *Blood pressure target in CKD should be <50th percentile for age, height, and gender of mean arterial pressure (MAP) on ambulatory blood pressure monitor (ABPM).*
- *Prompt management of modifiable risk factors like Hypertension, anemia, acidosis and Proteinuria helps to retard the progression of CKD.*
- *Children with ESKD should be prepared for KRT.*

References

1. Baum M. Overview of chronic kidney disease in children. *Curr Opin Pediatr.* 2010; 22(2):158-60.
2. Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. KDIGO 2024 Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. *Kidney Int.* Elsevier. 2024; 105(4S): S117-S314.
3. Stralen K, Harambat J, Clayton P, Craig J. Demography of CKD and ESRD in children. In: Geary DF, Schaefer F, editors. *Pediatric Kidney Disease.* 2nd ed. Elsevier: Netherlands; 2008;pp1385-1395.
4. Schwartz GJ, Furth SL. Glomerular filtration rate measurement and estimation in chronic kidney disease. *Pediatr Nephrol.* 2007; 22(11):1839-48.
5. Sinha A. Chronic Kidney Disease. In: Bagga A, Srivastava RN, editors. *Pediatric Nephrology.* 6th edition. New Delhi: Jaypee; 2016; pp374-413.
6. Ardissino G, Daccò V, Testa S, Bonaudo R, Claris-Appiani A, Taioli E, et al. Italkid Project. Epidemiology of chronic renal failure in children: data from the Italkid project. *Pediatrics.* 2003; 111(4 Pt 1): e382-7.

* Deputy Head

email: dr.kalai8283@gmail.com

** Pediatric Consultant,

Department of Pediatric Nephrology,
Mehta Multispeciality Hospitals (Pvt. Ltd), Chennai.
Krishnammal Hospital,
Nalam Hospital, Theni

7. Mistry K. Chronic Kidney Disease. In: Kher KK, Schnaper HW, Greenbaum LA, editors. *Clinical Pediatric Nephrology*. 3rd ed. Boca Raton: CRC Press; 2017; pp602-626.
8. Denis F. Geary , Franz Schaefer et al. *Pediatric Kidney Disease*, second edition: *Progression of Chronic Kidney Disease and Nephroprotective Therapy*,53:1399-1417.
9. Shaw V, Polderman N, Renken-Terhaerd J, Paglialonga F, Oosterveld M, Tuokkola J, et al. Energy and protein requirements for children with CKD stages 2-5 and on dialysis-clinical practice recommendations from the Pediatric Renal Nutrition Taskforce. *Pediatr Nephrol*. 2020; 35(3):519-531.
10. U.S. Renal Data System. *USRDS 2013 Annual Data Report: Atlas of Chronic Kidney Disease and End-Stage Renal Disease in the United States*. Bethesda, MD: National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases; 2013.
11. Chavers BM, Li S, Collins AJ, Herzog CA. Cardiovascular disease in pediatric chronic dialysis patients. *Kidney Int*. 2002; 62(2):648-53.
12. Iyengar A. Foster JB. Chronic Kidney Disease. In: Phadke K, Goodyer P, Bitzan M, editors. *Manual of Pediatric Nephrology*. 1st ed. Berlin: Springer; 2013; pp373-400.
13. KDOQI Work Group. KDOQI Clinical Practice Guideline for Nutrition in Children with CKD: 2008 update. Executive summary. *Am J Kidney Dis*. 2009; 53(3 Suppl 2):S11-104.