## FLUID AND ELECTROLYTE DISTURBANCE

## HYPOKALEMIA AND HYPERKALEMIA

## \*Sangeetha G

Abstract: The ions and molecules which are dissolved in our body should be at the normal range at any point of time. Either a decrease or an increase in the level of these ions are always associated with some clinical disturbance and may increase the risk of morbidity and mortality. Normal range of serum potassium is crucial as it is essential for muscle, nerves and cardiac electrical activity. High intracellular potassium concentration is required for cellular processes including DNA and protein synthesis, cell growth, apoptosis, mitochondrial enzyme function, maintenance of cell volume and acid base balance.

Keywords: Potassium, Hypokalemia, Hyperkalemia.

\* Assistant Professor, Department of Pediatric Medicine and Division of Pediatric Nephrology, Sri Ramachandra Medical College and Research Institute, Chennai. email: sangeethaperungo@gmail.com **Points to Remember** 

- Understanding the basics of potassium distribution in our body is essential to treat both hypo and hyperkalemia.
- Hypokalemia is more common in children than hyperkalemia. Always look for the reversible causes like volume depletion, medications, etc.
- Intravenous potassium chloride is a high alert medication and hence should be used cautiously under cardiac monitoring.
- Moderate to severe hyperkalemia is a life threatening medical emergency and needs urgent intervention.

## References

- Bianchetti MG, Bettinelli A. Differential Diagnosis and Management of Fluid, Electrolyte, and Acid–Base Disorders. In: Comprehensive Pediatric Nephrology, 1<sup>st</sup>Edn, eds Geary DF, Schaefer F. Mosby, Inc., an affiliate of Elsevier Inc. Philadelphia, 2008; pp394-431.
- Ashoor IF, Somers MJG. Physiology of the Developing Kidney: Fluid and Electrolyte Homeostasis and Therapy of Basic Disorders. In: Pediatric Nephrology, 7<sup>th</sup> Edn, edsAvner ED, Harmon WE, Niadudet P, Yoshikawa N, Goldstein LS. Springer Verlag Berlin Heidelberg, IPNA, 2016; pp361-422.
- 3. Mehul Shah. The Normal and Disorders of Water, Sodium, Potassium and Acid-Base metabolism In: Principles and Practice of Pediatric Nephrology, 2<sup>nd</sup> Edn, eds. Vijayakumar M, Nammalwar BR, Jaypee Brothers Medical Publishers (P)Ltd, New Delhi 2013; pp 13-82.
- Rodan AR. Potassium: friend or foe? PediatrNephrol2017; 32:1109–1112.
- 5. Unwin RJ, Luft FC, Shirley DG. Pathophysiology and management of hypokalemia: a clinical perspective. Nat Rev Nephrol 2011; 7: 75–84.
- Mount DB. Fluid and Electrolyte Disturbances. In: Harrison's Nephrology and Acid-base disorders. 2<sup>nd</sup> edn,eds. Jameson LJ, Loscalzo J, China Translation and Printing Services Ltd.China 2013; pp56-80.

10

Indian Journal of Practical Pediatrics

- Mount DB, Zandi- NejadK. Disorders of Potassium Balance. In: Brenner & Rector's The Kidney, 9<sup>th</sup> Edn, eds Maarten W. Taal, Glenn M. Chertow, Philip A. Marsden, Karl Skorecki and Barry M. Brenner. Elsevier Saunders, Philadelphia, 2012;pp640-688.
- Lehnhardt A, Kemper MJ. Pathogenesis, diagnosis and management of hyperkalemia. Pediatr Nephrol 2011; 26:377-384.
- 9. Palmer BF. Regulation of Potassium Homeostasis. Clin J Am SocNephrol 2015; 10(6):1050-1060.