Renal Tubular Acidosis in Children

New Insights in Diagnosis and Treatment

Ricardo Muñoz
Editor

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aying special attention to the molecu-
rs working at hydrogen excretion and
ubular cells of the nephron.

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Abbreviations

(NH_3)	Am
(NH_4^+)	Am
(nm/l)	Nar
(OH^-)	Hy
$[H^+]$	Hy
$[HCO_3^-]$	Bic
11-β-HSD2	11-
ACTH	Ad
ADH	An
AII RB	An
AQP	Aq
ASDN	Alc
BK	Ma
CA II/IV	Ca
CaSR	Cal
CCT	Co
CNT	Co
DOC	De
DRTA	Dis
ECF	Ext
ENaC	Epi
FENa	Fra
GH	Gr
GTTK	Re
H^+ATPase (V-H^+ATPase)	Hy (Va
H^+K^+ATPase	Hy
H_2CO_3	Ca
HCN1-HCN4	Hy Nu
HCO_3^-	Bic

Chapter 3
Physiology of Renal Potassium Handling

Adrián Rafael Murillo-de-Ozores, Gerardo Gamba, and María Castañeda-Bueno

Introduction

K^+ is the most abundant cation in intracellular fluid with a concentration of approximately 140 mmol/L, while in the extracellular fluid (ECF) the physiological concentration of K^+ ranges between 3.5 and 5.0 mmol/L. This concentration gradient allows the establishment of the electrical potential of plasma membranes of all the cells of the organism, which plays an especially important role in excitable cells, such as in skeletal or cardiac muscle cells, smooth muscle cells, and neurons. Therefore, alterations in the extracellular K^+ concentration ($[K^+]_{ECF}$) can cause, for example, serious alterations in the function of skeletal or smooth muscle and the heart [1, 2].

Potassium Balance

Daily K^+ intake (±54 mmol/day) is similar to the total amount of K^+ in the extracellular fluid (±60 mmol). Therefore, different mechanisms are responsible for preventing sudden changes in the $[K^+]_{ECF}$ in the postprandial period.

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