

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Acid-Base Balance-Electrolyte Quiz – Case 63

Increased potassium intake is associated with kaliuresis. Which of the following is not correlated with the renal adaptation to potassium intake?

- Increased secretion of aldosterone.
- Increased sodium chloride reabsorption in the early distal convoluted tubules (DCT).
- Increased renal outer medullary potassium channel (ROMK), and max-K⁺ channels-mediated potassium excretion.
- The Kir 4.1 channel in the DCT may act as a sensor.

Comment

Increased potassium intake is associated with increased secretion of aldosterone. High potassium intake inhibits the activity of thiazide-sensitive NaCl cotransporter (NCC) in the DCT1, resulting in increased Na⁺ delivery and tubular flow to the DCT2 and collecting duct. The increased tubular flow is associated with elevated potas-

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sium secretion through the maxi-K⁺ channels. The increased sodium delivery to the DCT2 and collecting duct along with the elevated aldosterone levels is also associated with increased potassium secretion through the ROMK channels. It has recently been suggested that basolateral Kir 4.1 channel in the DCT may act as a sensor by which changes in serum potassium concentrations affects the NCC activity and regulates potassium secretion.

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Answer: *Increased sodium chloride reabsorption in the early distal convoluted tubules (DCT)*
