

## CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

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### Acid-Base Balance-Electrolyte Quiz – Case 7

A 34-years-old woman presented to hospital with a 48h history of rapidly progressive limb weakness. Laboratory investigation showed serum sodium 139 mEq/L, potassium 1.8 mEq/L, creatinine 1.2 mg/dL, bicarbonate 15 mEq/L, chloride 113 mEq/L, arterial pH 7.26 and urinary pH 6.7. She did not take any drug known to affect potassium homeostasis, while thyroid function tests performed during her admission were within normal limits.

Which is the most possible diagnosis?

- a) Gitelman syndrome with hypokalemia-induced muscle weakness
- b) Distal renal tubular acidosis (type I) due to an underlying autoimmune disease
- c) Familial periodic paralysis
- d) Magnesium deficiency

Laboratory investigation established a diagnosis of distal tubular acidosis [hyperchloremic metabolic acidosis with a

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normal anion gap (11 mEq/L) associated with higher than expected urine pH]. Potassium wasting is a characteristic feature of RTA, but the underlying mechanisms are not fully unravelled. Autoimmune disorders (mainly Sjögren syndrome) are most frequently associated with acquired distal RTA, which is due to the loss of the luminal H<sup>+</sup>-ATPase pump from the intercalated cells in the collecting duct. On the other hand, both Gitelman syndrome and magnesium deficiency are not associated with acidemia, while the patient did not have a family history of familial periodic paralysis.

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**Diagnosis:** *Distal renal tubular acidosis (type I) due to an underlying autoimmune disease*

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