

CONTINUING MEDICAL EDUCATION ΣΥΝΕΧΙΖΟΜΕΝΗ ΙΑΤΡΙΚΗ ΕΚΠΑΙΔΕΥΣΗ

Acid-Base Balance-Electrolyte Quiz – Case 38

A 68-year-old woman was treated with intravenous immunoglobulin (containing a maltose carrier) for two days. Serum sodium and creatinine levels at baseline were 137 mEq/L and 1.4 mg/dL, respectively. Two days after the last dose of the drug increased serum creatinine (2.2 mg/dL) and decreased serum sodium levels (128 mEq/L) were observed.

The patient developed:

- a. Hyponatremia due to renal failure
- b. Pseudohyponatremia
- c. Translocational hyponatremia
- d. Syndrome of inappropriate secretion of ADH

Comment

Intravenous immunoglobulin has been reported to lead to hyperproteinemia and pseudohyponatremia. However, the drug can also induce true hyponatremia, resulting from the accumulation of the maltose carrier, which is an effective osmole leading to hyperosmolarity and subsequently to the translocation of water from

ARCHIVES OF HELLENIC MEDICINE 2013, 30(6):744
ΑΡΧΕΙΑ ΕΛΛΗΝΙΚΗΣ ΙΑΤΡΙΚΗΣ 2013, 30(6):744

**C. Rizos,
M. Elisaf**

*Department of Internal Medicine,
Medical School, University of Ioannina,
Ioannina, Greece*

the intracellular fluid to the extracellular fluid, thereby resulting in translocational (dilutional) hyponatremia. The coexistent intravenous immunoglobulin-induced acute renal failure may have played a prominent role in the development of hyponatremia, since in patients with renal failure maltose can accumulate in the extracellular fluid, raising the Posm. The large water load associated with the administration of intravenous immunoglobulin can also contribute to the pathogenesis of hyponatremia. For the differential diagnosis between pseudohyponatremia and translocational hyponatremia, serum sodium levels should be measured by using the direct ion selective electrode (ISE) and not by indirect ISE. In fact, in our patient serum sodium levels measured by the direct ISE was 128 mEq/L, thus establishing the diagnosis of true hyponatremia.

Corresponding author:

M. Elisaf, Department of Internal Medicine, Medical School, University of Ioannina, GR-451 10 Ioannina, Greece
e-mail: egepi@cc.uoi.gr

Answer: Translocational hyponatremia