An Unusual Cause of Dehydration

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Case Report

A 61 years old institutionalized man was admitted for confusion. A diagnosis of aspiration pneumonia associated with hypernatremic dehydration was proposed upon admission. Medical history was characterized by bipolar psychosis, and « potomania » was described by the team of the institution. The patient was treated with Lithium (Li) since more than 30 years.

After rehydration the urinary catheter explode ! We observed a massive polyuria (>4 L/24 h). Table 1 illustrates biochemical characteristics during hospitalization : upon admission (day 1) the patient presented two uncommon characteristics : (i) the absence of increased urines osmolality despite high serum osmolality; and : (ii) the absence of decreased serum parathormone (PTH) in the presence of hypercalcemia.

Serum Li was within the therapeutic range (1,1 mM/l).

Discussion

This case illustrates two complications of long-term lithium therapy : nephrogenic diabetes insipidus [1] and functional primary hyperparathyroidism [2]. These diagnosis were skipped by the team of the institution where the patient was taught to present « potomania », and where a water restriction was proposed. Pneumonia was the trigger of the decompensation of the hydromineral balance.

Nephrogenic diabetes insipidus is attributed to the competition of Li with the ADH receptors in the kidney. Lithium may also induce increased calcium reabsorbtion within the loop of Henle [3,4]. Concurrently, lithium can alter feedback mechanisms within the parathyroid gland, impeding the suppression of PTH normally produced by hypercalcemia [2]. In our case this latter disorder was slight since calcium levels normalized after rehydration and the suppression of water restriction.

Conclusion

Lithium is associated with increased risk of reduced urinary concentrating ability and functional hyperparathyroidism. Although the presence of hypercalcemia and hypernatremia is often secondary to dehydration associated with increased water loss and decreased water intake in old patients with pneumonia, Li-related endocrine disorders should be sought in the presence of Li therapy [5].

References