An adolescent patient presenting with hyponatremic seizure: Questions

Meral Torun Bayram¹ · Gizem Yıldız¹ · Alper Soylu¹ · Salih Kavukçu¹

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Case report

A previously healthy 15-year-old girl was referred to our clinic by a local hospital because of persistent unconsciousness following a generalized tonic-clonic seizure. Physical examination revealed an unconscious, well-developed adolescent with normal axillary temperature, pulse rate, and blood pressure. She was neither edematous nor dehydrated. There was no cranial nerve deficit, focal neurologic sign, papilledema, or neck stiffness. The only pathologic finding was the presence of a few dental caries. Cranial computed tomography, ordered after blood samples were obtained and IV line established, was normal.

Laboratory investigations revealed a serum sodium of 118 mmol/L, potassium 3.73 mmol/L, chloride 89 mmol/L, bicarbonate 22 mmol/L, blood urea nitrogen 4.3 mg/dL, creatinine 0.36 mg/dL, glucose 98 mg/dL, calcium 9.01 mg/dL, creatinine kinase 376 U/L, C-reactive protein (CRP) 0.5 mg/L, and serum osmolality 240 mosmol/kg. Urine osmolality was 325 mosmol/kg, sodium 35 mmol/L, and creatinine 7.01 mg/dL, giving a fractional excretion of sodium (FENa) of 1.5%. Toxicologic analysis of urine was negative. Evaluation of cerebrospinal fluid was normal.

Hypertonic saline infusion (6 mL/kg 3% NaCl) was started to correct hyponatremia. In addition, parenteral ceftriaxone and acyclovir treatment were initiated. Her consciousness

improved rapidly along with serum sodium level which was 129 mmol/L after 3 h. Thereafter, hypertonic saline infusion was stopped and isotonic saline at a dose of maintenance fluid requirement was given. During follow-up, the patient was noted to be polyuric and serum sodium normalized within this period (134 mmol/L after 10 h and 139 mmol/L after 14 h). Along with improved serum sodium, her clinical condition also improved. Antimicrobial treatment was stopped when the culture results were reported to be sterile.

The parents stated that the patient had a toothache due to abscess formation for the last 3 days and used amoxicillin-clavulonic acid plus etodolac during this period. When the patient regained consciousness, detailed questioning revealed the cause of hyponatremia.

Question

What is the cause of hyponatremia in this patient?

Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

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✉ Alper Soylu
alper.soylu@deu.edu.tr

¹ Department of Pediatric Nephrology, Dokuz Eylül University Medical Faculty, 35340 Balçova, İzmir, Turkey