

Severe Hyponatremia in a Schizophrenic Patient

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CASE

A 63-year-old white man with a history of schizophrenia plus polysubstance and alcohol abuse was seen by his primary care physician during a routine visit, at which time he was found to have a serum sodium concentration of 113 mmol/L. The patient was contacted by phone and advised to return to Urgent Care for assessment, but he did not respond until 7 days later, at which time his serum sodium concentration was 106 mmol/L. He reported that he felt fine the day before but that he started feeling very lethargic that morning and had trouble “keeping his eyes open.” The patient was noted to be somnolent and confused. Table 1 summarizes the patient’s laboratory data on admission.

Table 1. Patient’s laboratory results at time of admission.

Test	Result	Reference interval
Sodium, mmol/L	106	135–145
Potassium, mmol/L	4.8	3.5–5.0
Chloride, mmol/L	73	100–110
CO ₂ , mmol/L	27	20–30
Glucose, mg/dL (mmol/L)	193 (10.7)	65–100 (3.6–5.6)
Urea nitrogen, mg/dL (mmol/L)	9 (3.2)	7–25 (2.5–8.9)
Creatinine, mg/dL (μmol/L)	0.8 (70.7)	0.5–1.5 (44.2–132.6)
Albumin (total), g/L	3.9	3.2–5.0
Protein (total), g/L	6.3	6.0–8.5
ALT, U/L ^a	61	7–52
AST, U/L	76	5–34
Bilirubin (total), mg/dL (μmol/L)	0.3 (5.1)	0.2–1.2 (3.4–20.5)
Alkaline phosphatase, U/L	47	40–150
Osmolality (serum), mOsm/kg H ₂ O	245	280–300
Osmolality (urine), mOsm/kg H ₂ O	227	300–1000
Sodium (urine), mmol/L	<20	
Potassium (urine), mmol/L	21	
Chloride (urine), mmol/L	42	

^a ALT, alanine aminotransferase; AST, aspartate aminotransferase.

Questions to Consider

- What are the causes of severe hyponatremia?
- How much water needs to be consumed before hyponatremia can occur in a patient with a normal diet?
- In correcting severe hyponatremia, why must serum sodium be monitored closely?

Final Publication and Comments

The final published version with discussion and comments from the experts will appear in the June 2013 issue of *Clinical Chemistry*. To view the case and comments online, go to <http://www.clinchem.org/content/vol59/issue6> and follow the link to the Clinical Case Study and Commentaries.

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