

### CASE C—EVALUATION OF HYPONATREMIA

A 32 year old male presented with a history of one episode of passing blood in his stool. He had a history of alcohol abuse, and had been in an automobile accident the previous year, injuring his head. After routine laboratory tests revealed a serum sodium of 115 mmol/L, he was questioned further, and stated that he is “always thirsty” and drinks several glasses of water daily to help with this. What is the likely cause for hyponatremia? One of the physicians questioned whether he might have either diabetes insipidus or inappropriate ADH production; can these results help determine the likelihood of either diagnosis?

SPECIMEN	Na	K	Cl	CO <sub>2</sub>	BUN	Creatinine	Glucose	Osmolality
Serum	115	4.8	79	26	3	0.7	84	246
Urine	< 10	6.3	< 15			14.1		44

#### Discussion

In this case, the patient has marked hyponatremia and hypochloremia with a markedly low BUN and lowered osmolality. These findings suggest the presence of water overload, either due to inappropriate antidiuretic hormone production or overingestion of water. Diabetes insipidus can cause a low urine osmolality and high urine output and cause the patient to be chronically thirsty; however, thirst is driven by an increased osmolality, while this patient’s serum osmolality is markedly decreased. The combination of diluted serum with a urine showing maximal dilution firmly establishes the diagnosis of water intoxication. This patient was treated with water restriction, and by 24 hours later his serum sodium had increased to 133 and his urine osmolality had risen to 223; he was discharged from the hospital. Primary polydypsia, as was present in this case, is a relatively common disorder; we see 5-10 patients a year with this phenomenon. In my experience, this is much more frequent than compulsive water drinking in psychiatric patients, which has been much more widely reported. Most patients respond quickly to fluid restriction; however, many of our patients have been admitted on more than one occasion with the same problem, suggesting that there may indeed be some component of psychiatric compulsion to drink water.