The information in this column is not intended as a definitive treatment strategy but as a suggested approach for clinicians treating patients with similar histories. Individual cases may vary and should be evaluated carefully before treatment is provided.

Subacute alteration in level of consciousness in a woman with psychotic depression

Hyponatremia secondary to the syndrome of inappropriate antidiuretic hormone secretion (SIADH) is an unusual cause of altered consciousness, although it has been described after treatment with various psychotropic medications. Clinicians therefore need to consider SIADH when patients taking psychotropic medications present with otherwise unexplained changes in their level of consciousness.

NS was a 33-year-old single woman taken by her father to the emergency department. She was obtunded and unable to provide a history, with a Glasgow Coma Scale of 9 and no focal neurologic signs. NS was admitted to the intensive care unit for investigation and stabilization.

NS had a 7-year history of psychotic symptoms associated with depressive episodes. Symptom onset coincided with a clinical presentation of Cushing's syndrome, likely secondary to a left adrenal adenoma. The peripheral Cushingoid features resolved after successful left adrenalectomy 5 years before this hospitalization. NS received steroids only for 2 years after the unilateral adrenalectomy, after which her cortisol levels were maintained within the normal range. NS had acid reflux disease and had been treated with pantoprazole for several years, which included the time of presentation. Over time, NS had been treated with multiple antidepressants and antipsychotic medications, including bupropion SR up to a total of 450 mg daily, with partial response. Bupropion had been discontinued a year before this episode and restarted before this presentation. NS was taking quetiapine 300 mg and diazepam 20 mg daily for several months preceding admission. Buproprion was increased over 2 weeks, from 150 mg to 300 mg daily, after which NS began to show the signs of an altered level of consciousness that resulted in hospitalization.

A computed tomography scan of her brain on admission revealed no abnormality, and lumbar puncture results were within normal ranges. Laboratory investigations revealed normal blood pH (7.46), low serum sodium (Na^+) at 112 mmol/L, normal potassium (K^+) at 3.5 mmol/L, low chloride at 79 mmol/L, low serum osmolality at 240 mOsm/kg, high urine osmolality at 468 mOsm/kg and high urinary Na^+ at 82 mmol/L. Random cortisol was elevated at 927 nmol/L, reflecting an appropriate reaction to stress. Anion gap, complete blood count, thyroid-stimulating hormone, renal function and serum prolactin (12 ng/mL) were all normal. Sodium levels were corrected, and NS was discharged without further incident.

Differential diagnoses included SIADH or SIADH-like syndrome; the preferred diagnosis was SIADH because there was no evidence for renal tubular acidosis. SIADH is diagnosed when serum osmolality is inappropriately lower than urine osmolality, with normal to high urinary Na^+ and hyponatremia.[1] SIADH has various causes, including antiepileptic and psychotropic medications that can stimulate the secretion of antidiuretic hormone (ADH) or potentiate its actions.[2] In this case, it is plausible that the increase in bupropion contributed to the development of SIADH. Bupropion has been associated with hyponatremia in at least 2 reported cases. In one, the patient was also taking antiepileptic medications. The other case described significant dietary modifications without further information. Both describe a gradual reduction in serum Na^+ levels, and the hyponatremia was not as extreme as in our case (> 124 mmol/L). The possible contributing factors of concurrent medication use and the adrenelectomy must also be considered in this case.

The mechanism of action of psychotropic medications on ADH is unknown. ADH is secreted by septoptic and paraventricular nuclei in the hypothalamus and transmitted via neuronal axons to the posterior pituitary. Hyponatremia induced by antiepilectics may result from increased secretion of ADH and increased distal collecting tubule sensitivity to ADH. Whether this can occur with bupropion is undetermined.

A history of complex psychiatric symptoms can sometimes delay thorough medical investigation of changes in a patient's mental status. In this case, there were no typical clinical features to suggest a priori that hyponatremia was the likely cause of the altered mental status.[3] This case therefore emphasizes the importance of rapidly identifying and thoroughly investigating alterations in any patient's level of consciousness.

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Psychopharmacology for the Clinician columns are usually based on a case report that illustrates a point of interest in clinical psychopharmacology. They are about 500–650 words long and do not include references. Columns can include a bibliography which will be available only at the journal Web site and can be accessed through a link at the bottom of the column. Please submit appropriate columns online at http://mc.manuscriptcentral.com/jpn; inquiries may be directed to jpn@cma.ca.

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