SELECTIVE SEROTONIN REUPTAKE INHIBITORS INDUCED SYNDROME OF INAPPROPRIATE ANTIDIURETIC HORMONE SECRETION AND SEIZURES

Ahmed Shoaib, Muhammad Luqman, Zulfiqar Ali Malik, Shahzad Saeed, Zulfiqar Ali Kango

Combined Military Hospital Quetta

INTRODUCTION

Selective serotonin reuptake inhibitors (SSRI), which include some of the most widely prescribed drugs in Pakistan and world over, produce fewer adverse effects than other types of antidepressants. But their use can be associated with disruption of the action of antidiuretic hormone in the body, which wreaks havoc with homeostasis. This may lead to the syndrome of inappropriate antidiuretic hormone secretion (SIADH), which is characterized by hyponatremia, a potentially fatal condition that is typically asymptomatic until it becomes severe. SIADH is more likely in some populations, including people who are elderly or who take diuretics. Serum sodium levels should be monitored closely in those at higher risk [1].

CASE REPORT

A 40 years old male was admitted to surgical ward on account of abdominal pain and vomiting of 2 days duration. While in the ward he developed a generalized tonic clonic seizure, which was witnessed by the paramedical staff. He was shifted to the medical care unit and investigated. He complained of generalized weakness and anorexia and there was no past history of fits. On examination he was drowsy, had tongue laceration and urinary incontinence. There was no focal neurological deficit and systemic examination was unremarkable. While in the surgical unit he received omeprazole infusion, ciprofloxacin, metronidazole and metoclopromide along with normal saline and ringer lactate for provisional diagnosis of acute abdomen. His preliminary laboratory results revealed hyponatremia (Serum Na 114 mmol/L), serum hypo osmolality (245.2 momol/L) and urine hyper osmolarity (534.4 mosmol/L), leading to the provisional diagnosis of SIADH. In order to establish the cause of SIADH, all other investigations including serum cortisol, renal function tests, thyroid function tests and pituitary function tests were done and were within normal range. His CT scan brain and CT scan and ultrasound examination of abdomen were also unremarkable.

His clinical management included, critical maintenance of fluid balance by administering normal saline and loop diuretics. Effort was made to establish the etiology of SIADH and on detailed history, the patient revealed that he was taking antidepressant medicines (Tab Citalopram 20 mg) daily for the last one month on account of depressive illness, as prescribed by a psychiatrist. The medicine was immediately stopped besides that all other medicines including ciprofloxacin were already discontinued for the past two weeks. Supportive treatment continued and over the span of one month all his biochemical profile reverted to normal.

DISCUSSION

Hyponatremia (serum sodium <135 mmol/L) has been reported with SSRIs. Risk factors include increased age, female gender, smoking, low body weight, tumors, respiratory or CNS illnesses, previous episodes of hyponatremia, and other medications (particularly diuretics) [1, 2]. The mechanism is through the syndrome of inappropriate secretion of antidiuretic hormone (SIADH) or impaired function of

Correspondence: Maj Ahmed Shoaib, Dept of Psychiatry, Combined Military Hospital, Quetta
Email: shoaibtabassum@hotmail.com
Received: 01 April 2007; Accepted: 24 Dec 2008

ADH on kidneys, resulting in an euvolemic hyponatremia with low serum and high urine osmolalities [1, 3]. Patients may present with fatigue, weakness, and apathy, which may simulate worsening depression. Severe hyponatremia may lead to seizures and coma [3, 4]. Mild hyponatremia generally reverses following medication discontinuation; fluid restriction may be advised. Severe hyponatremia may need IV normal or hypertonic saline, though excessively rapid correction may induce heart failure or central pontine myelinosis [5]. Some may benefit from demeclocycline [5].

Regarding our patient, the correction of his hyponatremia and shifting him to another class of antidepressants, resulted in resolution of his biochemical disturbances and elimination of seizure activity. Additive drug effects and drug interactions may potentiate convulsions and hyponatremia. Quinolones (ciprofloxacin) can cause nausea, vomiting, asthenia, abdominal pain but no hyponatremia [6]. Omeprazole is also a potential cause of seizures and hyponatremia [6], similarly metronidazole can cause seizures.

Physicians prescribing SSRIs, especially for elderly patients, should be alert to SIADH presenting with sub acute mental state changes. Assessment of volume and electrolyte status should be promptly accomplished. Patients in described risk groups, especially elderly patients, should have their serum sodium levels monitored at the start of therapy and then weekly during the first month of treatment. In elderly patients with additional risk factors, continued monthly monitoring for at least three additional months would be prudent in order to detect delayed onset of SIADH [7].

REFERENCES

1. Kirby D, Ames D, Hyponatremia and Serotonin re-uptake inhibitors in elderly patients. Int J Geriatr Psychiatry. 2001; 16:484-93
2. Romerio SC, Radanowicz V, Schlienger RG, SIADH with epileptic seizures and coma in fluoxetine therapy. Schweiz Rundsch Med Prax. 2000; 89:404-10.
3. Fonzo-Christe C. Vogt N: Susceptibility of the elderly patient to hyponatremia induced by selective serotonin reuptake inhibitors. Therapie 2000; 55: 597-604.
4. Inaguma D, Kitagawa W, Hayashi H, Kanoh T, Kurata K, Kumon S. Three cases of severe hyponatremia under taking selective serotonin reuptake inhibitor (SSRI). Nippon Jinzo Gakki Shi 2000; 42:644-8.
5. Leung VPY, Chiu HFK, Lam LCW: Hyponatremia associated with paroxetine, Pharmacopsychiatry 1998; 31:32-4
6. British National formulary (BNF); Sept 2006 edition.
7. Carolle NR: SSRIs and syndrome of inappropriate diuretic hormone secretion, Am Jour Nurs 2007; 107:51-8.
