Syndrome of Inappropriate Secretion of Anti-Diuretic Hormone (SIADH) Secondary to Single Dose of Quetiapine

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Citation

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Abstract

Hyponatremia (serum sodium <135 mmol/L) has been reported with antipsychotic drugs and selective serotonin reuptake inhibitors (SSRIs). A recent case control study from the Netherlands by Mannesse et al. described 912 cases of reported hyponatremia secondary to antipsychotics with reported odds ratio for association between antipsychotic and hyponatremia to be 1.58 (95% CI, 1.46-1.70)[1]. Here we present a rare case report of hyponatremia from a single dose of 12.5mg quetiapine.

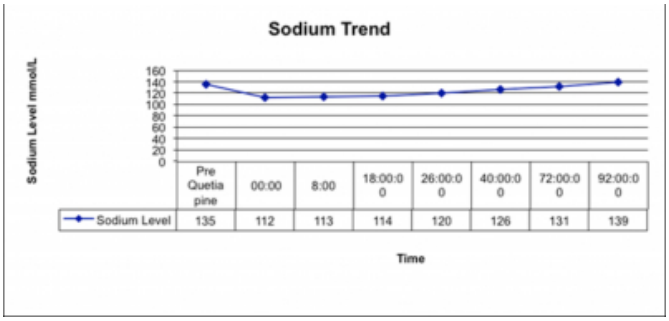
INTRODUCTION

Hyponatremia (serum sodium <135 mmol/L) has been reported with antipsychotic drugs and selective serotonin reuptake inhibitors (SSRIs). A recent case control study from the Netherlands by Mannesse et al. described 912 cases of reported hyponatremia secondary to antipsychotics with reported odds ratio for association between antipsychotic and hyponatremia to be 1.58 (95% CI, 1.46-1.70)[1]. Here we present a rare case report of hyponatremia from a single dose of 12.5mg quetiapine.

CASE

A 64 year-old female was brought in by EMS after having a witnessed seizure followed by altered mental status at home. She was discharged three days prior after suffering a fall with a fracture of left upper maxilla and left frontal scalp hematoma. During her initial admission, she had a complete work-up for syncope which was unremarkable including MRI, EEG and echocardiogram. A sleep disorder was considered as possible cause given symptoms suggestive of narcolepsy. Her paroxetine and clonazepam were discontinued and quetiapine was prescribed for her depression. On re-admission she was found to have serum sodium of 112mmol/l. Her sodium three days prior was 135mmol/l. On presentation she was found to be obtunded and was transferred to the intensive care unit for severe hyponatremia. CT scan of head showed resolving left frontal hematoma without any significant change from previous CT scan. On further inquiry she reported taking only one dose of 12.5mg quetiapine. Other lab data showed serum osmolality 234mOsm/kg, urine osmolality 564mOsm/kg, urine sodium 126meq/L, thyroid stimulating hormone 1.09miu/ml, and morning cortisol 22.8ug/dl. She was initially treated with hypertonic saline for twelve hours with an inappropriate sodium rise to 114mmol/l. The patient was euvolemic and had no evidence of volume overload. SIADH was diagnosed and a fluid restriction of 800 ml/day was implemented and quetiapine was discontinued. Her serum sodium rose to122mmol/l in next 24 hours and to 131mmol/l by 48 hours. Her mental status returned to normal. Her serum sodium trend was as shown in figure 1 below.

Figure 1

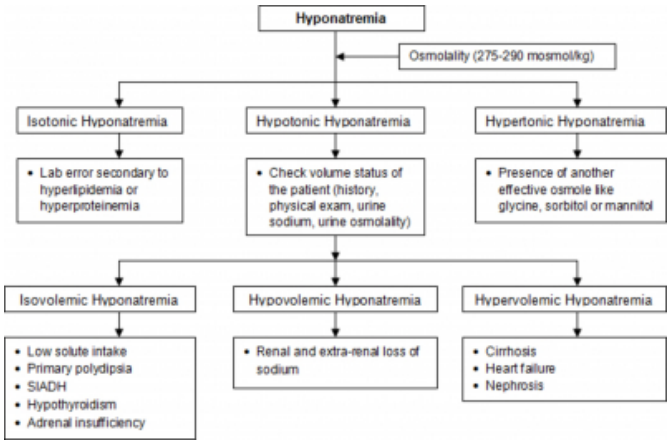


DISCUSSION

This was a case of a 64 year-old female who developed severe hyponatremia after single low dose of 12.5mg of quetiapine. Hyponatremia is defined as serum sodium (Na) <135 mmol/L. Its frequency is higher in females, the elderly and in hospitalized patients[3]. Hyponatremia has been reported to occur in about 4% of patients with schizophrenia and occasionally in manic-depressive psychosis. It is usually asymptomatic until sodium level falls below 130 mmol/L.

Symptoms are nonspecific and include muscle weakness, cramps, lethargy, dizziness, nausea, and headache, but can also present as confusion, ataxia, seizure and death. It can be classified as isotonic, hypertonic and hypotonic hyponatremia based on plasma osmolality. It is important to determine the type/etiology of hyponatremia as management of each subtype is different[2]. Differential diagnosis of hyponatremia based on osmolality is as follow:

Figure 2



SIADH, a diagnosis of exclusion, is an isovolemic hyponatremia characterize by elevated urine osmolality in the setting of diluted serum osmolality. The patient's kidney function, thyroid function and adrenal function should be in normal range to make a diagnosis of SIADH in a patient with euvolemic hyponatremia[2,4]. There are many causes of SIADH, the most common being due to malignant tumors, protracted nausea and medications[2]. The acute treatment of severe hyponatremia due to SIADH, in many cases, requires infusion of hypertonic saline. The long-term treatment of most cases of SIADH is to eliminate the underlying cause and fluid restriction.

In the current case, SIADH was caused by administration of an anti-psychotic. Polypharmacy and concomitant use of anti-psychotic medications may precipitate hyponatremia and/or SIADH. Atypical anti-psychotics like risperidone, clozapine have been reported to cause SIADH in literature along with SSRIs[5]. Mannesse et al reported 631 cases of hyponatremia associated with anti-psychotics of which 38 cases where secondary to quetiapine. In our case, hyponatremia was caused by quetiapine as based on laboratory data and improvement in patient's sodium after discontinuation of quetiapine. To our best knowledge there has been no literature showing a temporal association of dose and severity of hyponatremia. Our patient developed severe hyponatremia with a single low dose quetiapine. Hence, we emphasize that physician should be aware of development of hyponatremia with even single low dose quetiapine.

CONCLUSION

We recommend that serum sodium concentrations should be measured before and after initiation of treatment with any antipsychotics medication to prevent life threatening adverse events[5-6].

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