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### **HYPONATREMIA & WATER INTOXICATION WITH CARBAMAZEPINE: A RARE CASE REPORT.**

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#### **ABSTRACT**

Many of the patients undergoing psychiatric treatment suffer from polydipsia and polyuria. In most of the instances there is no medically identifiable cause of this polydipsia and polyuria<sup>1</sup>. Dilutional hyponatremia is one of the common complication of such polydipsia and if not recognized in time may lead to water intoxication and further complications.

Here we present a rather rare case of 50 years male who was a diagnosed case of schizoaffective disorder on carbamazepine & quetiapine. He developed hyponatremia and progressed to water intoxication. The cause of the hyponatremia in this patient was Syndrome of inappropriate antidiuretic hormone (SIADH) secondary to of carbamazepine (CBZ) therapy<sup>2</sup>. CBZ has antidiuretic properties<sup>3</sup> which was responsible for water intoxication and dilutional hyponatremia in this patient. The patient was investigated and was found to be having serum sodium level of 130mmol/lit. Patient was treated by fluid restriction and discontinuation of carbamazepine (4,5,6).

**Keyword: Carbamazepine, Water intoxication, Dilutional Hyponatremia, SIADH.**

## INTRODUCTION

The patients undergoing long term psychiatric treatment are prone for many types of electrolyte imbalances with their inherent complications. This may be secondary to psychogenic polydipsia or due to adverse effects of antipsychotic drug treatment. Most common electrolyte imbalance seen in such patients is hyponatremis. If not recognized and managed in time this may progress to water intoxication. The most common manifestations of this hyponatremia and water intoxication may include malaise, lethargy, mental slowing, thirst, confusion, frequent fall, gait disturbances (7) exacerbate psychotic symptoms, seizure and in extreme cases it may even cause death. Many of the psychiatric patients suffer from excessive water drinking which is known as “compulsive water drinking”; “psychogenic polydipsia”; or “self induced water intoxication”.

Although the underlying psychopathology of the syndrome is unclear it is usually caused by a failure to excrete water normally. In healthy individual, the ingestion of water does not lead to hyponatremia because suppressed release of antidiuretic hormone also called vasopressin, allow excess water to be excreted in dilute urine<sup>1</sup>. If water intake exceeds the reduced urine output the ensuing water retention leads to the develop hyponatremia, Even though the cause is unknown relevant factors seem to include a possible dysfunction in CNS, thirst, disturbance in

osmoregulatory centre, SIADH and psychoactive drugs like CBZ.

Epidemiological survey found polydipsia with water intoxication to be associated with chronicity, psychiatric disorder, smoking with some medications. Most of the patient with CBZ induced hyponatremia are asymptomatic. In rare cases water intoxication has been reported. Treatment modalities are water restriction and minimize the exacerbation factors such as high neuroleptic dosage, cigarette consumption and stop CBZ, switch to another mood stabilizer like sodium valproate.

## CASE REPORT:

The patient was 50 years male who has been in psychiatric hospital Taif in chronic rehabilitation ward since 25 years. He was diagnosed with schizoaffective disorder. He was on Qutiapine 400mg/day and carbamazepine 500mg/day.

Patient was apparently alright two years back, on routine yearly investigation we found that his serum sodium level is low, we repeated same investigation even though we found it was low level. Staff nurse observed that patient used to drink more water, in spite of given instruction to drink less water, on inquiry he said that he is feeling more thirsty. We put the patient in isolation room to prevent from drinking excessive water, and repeated serum sodium level it comes

on borderline 134mmol/ lit but whenever he got a chance he used to drink excessive water. Staff nurse also observed change in his behavior and reported that patient is feeling fatigued with retarded psychomotor functions and became slow and confused at times, also deterioration in his psychosis i.e hallucinatory attitude, increase irritability and muttering to self.

When we repeat his serum sodium level we found it is 130mmol/ lit then we stopped his all medications and advised strict water restriction. After one week serum sodium became normal. We restarted his medication along with switch CBZ to sodium valproate, we also observed his psychosis slowly improved.

We concluded that hyponatremia and water intoxication is due to excessive water drinking and carbamazepine.

#### CONCLUSION:

Most of the psychiatric patient has idiopathic polydipsia that progress to hyponatremia and water intoxication.

Prolonged intake of drugs like carbamazepine are also one of the causes of hyponatremia. In such cases best management is water restriction and switch CBZ to another mood stabilizer like sodium valproate.

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