Concomitant Use of Antipsychotics and Diuretic Accelerates the Hyponatremia Effect

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Abstract — We reported a case of severe symptomatic hyponatremia with a serum sodium level of 113 mmol/l after 2 weeks commencement of 2 types atypical antipsychotics; clozapine and amisulpiride with indapamide, a thiazide-like diuretic antihypertensive medication. Discontinuation of indapamide despite of continuation of his antipsychotics showed improvement in his serum sodium level. The aim of our case report is to emphasize the life-threatening complication associated with the combination of agents that may cause hyponatremia. Both agents are known to cause electrolytes imbalance. Hence, close monitoring of the serum sodium is important during the treatment course.

Keywords — Hyponatremia; Schizophrenia; indapamide; antipsychotics.

I. INTRODUCTION

Schizophrenia is a chronic relapsing mental disorder that leads to deterioration in social and occupational functioning. It is challenging and difficult to treat. Failure of improvement in the target symptoms (positive symptoms, negative symptoms and cognitive symptoms) despite sufficient dose at 300mg/day equivalent dose of chlorpromazine for at least 8 weeks is considered as treatment resistant schizophrenia (TRS) [1]. Antipsychotic is the mainstay of treatment in Schizophrenia. About 30% of schizophrenia patients will receive the diagnosis of TRS [2]. It is a challenging condition to treat. Majority of cases would use polypharmacy in the treatment of TRS. As a result, it predisposes patients to develop medication-related side effects namely metabolic syndrome which is associated with cardiovascular complications. These will further lead to the additional medications that inclines towards drug-drug interaction. Hence, the benefits versus risks in the treatment of TRS need to be greatly considered.

II. CASE REPORT

Mr. X is a 48-year-old gentleman, presented with changed in behaviors by exhibiting negative symptoms such as social withdrawn, slowness and lack of motivation in his early 20s followed by positive symptoms (predominantly auditory hallucination and persecutory delusion) a year later. He only sought treatment after five years and since then he was diagnosed to have schizophrenia. Due to this, he required multiple psychiatric hospitalizations following aggressive behaviors secondary to commanding auditory hallucination and persecutory delusion that he experienced. He had tried...
Mr. X had tried multiple types of antipsychotics, both from first and second-generation antipsychotics, but less improvement could be seen in view of multiple relapses. Later, he was put on the combination of both clozapine and amisulpiride (second-generation antipsychotics (SGA)) in which clozapine augmentation with amisulpiride more efficacious compared to clozapine alone towards positive and negative symptoms with less extrapyramidal side effects. Since, metabolic syndromes are more prone among SGAs, [3] he was diagnosed with hypertension and diabetes after he was on these psychotropic medications. Due to his non-adherence towards the medications, he developed the hypertension complications that leads to the additional three antihypertensive medications. Even though his psychopathologies were improving after the combinations of these medications, unfortunately he developed generalized tonic-clonic seizure secondary to severe hyponatremia during his recent acute admission.

There are multiple etiologies that can cause hyponatremia. In this case, it can be explained through the drug-drug interaction between his antihypertensive medications namely Indapamide with antipsychotics which were Clozapine and Amisulpiride. Antipsychotic may cause hyponatremia in the context of water intoxication, drug-induced syndrome of inappropriate antidiuretic hormone (SIADH) and severe hyperlipidemia and/or hyperglycemia [4, 5].

The prevalence of antipsychotic induced hyponatremia was about 10% in a chronic psychiatric patients [6]. Although the information on the risk of hyponatremia is limited, in a systemic review of case reports revealed that clozapine is one of the commonest SGAs that is associated with hyponatremia. Other SGAs including the -pine group (Asenapine, Olanzapine, Quetiapine), the -done group Risperidone, Paliperidone, Lurasidone, Ziprasidone and Aripiprazole [7]. The risk of developing hyponatremia is three times increased in a patient who did not receive any other concomitant medications that may cause hyponatremia apart from antipsychotics alone [8].

While Indapamide is an antihypertension medication (thiazide-like diuretic) which is a well-known in causing hypokalemia. However, there were many case reports reported Indapamide causing hyponatremia as well that is believed to be caused by the indapamide-induced syndrome of inappropriate antidiuretic hormone (SIADH) [9, 10]. Therefore, combination of both Indapamide and antipsychotics not only exacerbate the tendency of developing hyponatremia in this patient, but also accelerates the effect of hyponatremia far greater during the first month of its use [11].

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TABLE 1. SERIES OF SERUM SODIUM

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<td>Indapamide was added in while other medications were continued during current admission:</td>
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<td>Perindopril</td>
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<td>Amisulpiride</td>
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*IM= intramuscular

IV. CONCLUSIONS

In conclusion, close monitoring of the electrolytes is vital in psychiatric patients who received antipsychotics especially those with polypharmacy regime as well as among those who has underlying medical co-morbidity with potential medications that can cause electrolyte imbalance to avoid unnecessary adverse drug reaction that may jeopardize patient’s life as well as patient’s quality of life due to relapses.

CONSENT TO PARTICIPATE

Written informed consent was obtained from the patient for the anonymized information to be published in this article.

CONFLICT OF INTERESTS

The authors declare that there is no conflict of interest.

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REFERENCES


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