

## A Case Report on Clozapine induced Diabetics Mellitus.

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### ABSTRACT

Diabetes mellitus is one of the complication induced by clozapine. We report a case of 29 year old male who had schizophrenia and was on Clozapine 100 mg twice a daily and he showed an abrupt increase in blood sugar level. We have done Naranjo Causality Assessment to establish the relationship between the drug and observed adverse effects. Diabetics Mellitus is considered as one of the rare side effect of Clozapine. A thorough Past Medication History Interview is therefore helpful in identifying rare adverse events.

### I. INTRODUCTION

Clozapine is second generation atypical antipsychotic recommended for treatment of resistant schizophrenia. The therapeutic efficacy of clozapine (dibenzodiazepine antipsychotic) is proposed to be mediated through antagonism of the dopamine type 2 (D2) and serotonin type 2A (5-HT<sub>2A</sub>) receptors. In addition, it acts as an antagonist at alpha-adrenergic, histamine H<sub>1</sub>, cholinergic, and other dopaminergic and serotonergic receptors. The most common side effect include hypertension, dizziness, drowsiness, hypertriglyceridemia, weight gain, visual disturbance. In this study we report a case that showed remarkable change in GRBS as well as HbA<sub>1c</sub> level after initiation of clozapine.

### II. CASE HISTORY

A 29 year old male with Past history of Schizophrenia was admitted on the Psychiatric Department with chief complaints of giddiness, blurred vision & general weakness. He had a history of increased intake of sugary liquids 3-4 days. He was on Clozapine for past 3 months and the GRBS level was 534mg/dL on admission and his HbA<sub>1c</sub> was 7.7%. He was managed with Inj. Human Actrapid 10ml/min intravenously and then GRBS was found to be 225mg/dL. Causality assessment was performed using WHO Causality Assessment scale and Naranjo scale, the event was found to be Probable and Severity was assessed as moderate.

### III. DISCUSSION

Clozapine shown to be an effective antipsychotic in schizophrenic patients, however they are frequently associated with many adverse effects including metabolic disturbances like diabetics mellitus. Mechanism associated with diabetics mellitus involves high affinity of Clozapine for muscarinic M<sub>2</sub> and M<sub>3</sub> receptors present over pancreatic  $\beta$  cells. M<sub>3</sub> receptors control cholinergic-dependent insulin release and have a role in maintaining glucose homeostasis. M<sub>3</sub> antagonism can result in pancreatic beta cell dysfunction. Thus, this strong anticholinergic activity of clozapine may be a common link responsible for causing both acute-onset hyperglycaemia and delirium. Another contributory mechanism for hyperglycaemia like mitochondrial damage to insulin responsive cells and increased glucagon secretion with the use of clozapine. Every patient should have a full and thorough Past Medication History Interview by the Clinical Pharmacists. The metabolic syndromes can be improved dramatically when the offending agent is gradually stopped by dose titrations. Sudden withdrawal should not be done as this may lead to refractory Schizophrenia. The treatment of diabetics mellitus focuses on stopping the offending medicine as soon as possible after it is identified, as well as prescribing alternative agent for reducing the symptoms associated with disease.

### IV. CONCLUSION

The case report highlights clozapine induced Diabetes mellitus in an 29 year old male patient for Schizophrenia. Furthermore this case point out the importance of blood sugar monitoring at regular intervals in patients receiving Clozapine and also the need for a better communication by means of providing counselling on medications as well as lifestyle modifications and by giving patient information leaflets.



### REFERENCES

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