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Case Study

Anti-Psychotic–Associated Metabolic Complications: A Case of Diabetic Ulcer Triggered by Olanzepine

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ABSTRACT

Olanzapine is an antipsychotic drug, can cause significant metabolic adverse effects, including hyperglycemia and new-onset diabetes. We report 40 yr old male with schizophrenia, who developed a plantar diabetic ulcer after prolonged use of olanzapine 5mg BD. The patient has no previous diabetic history but presented with uncontrolled hyperglycemia. Following olanzapine discontinuation, initiation of insulin therapy and local wound management, glycemic control was achieved and the ulcer shows the signs of healing. This case highlights the need for regular glucose monitoring and awareness of severe metabolic complications in olanzapine- treated patients. Vigilant monitoring and timely drug substitution are essential to minimize morbidity.

INTRODUCTION

Olanzapine, a second – generation (atypical) antipsychotic, is commonly prescribed for the treatment of Schizophrenia and Bipolar disorder due to its efficacy in controlling psychotic symptoms and mood stabilization.[1] However, Olanzapine is strongly associated with metabolic adverse effects, including Significant weight gain, Dyslipidemia, Insulin resistance and new onset type 2 diabetes mellitus.[5] These effects are attributed to its antagonism of histamine H1, serotonin 5-HT2C, and muscarinic M3 receptors, which collectively promote appetite stimulation, and pancreatic beta-cell dysfunction.[2] Drug – induced diabetes can lead to complications if not promptly recognized and managed. Diabetic ulcers are rare but serious manifestation, often resulting from hyperglycemia-induced microvascular damage, neuropathy and impaired wound-healing.[9] While several reports describe Olanzapine-induced hyperglycemia and diabetes, progression to diabetic ulcers is rarely documented in the literature.[8]

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Case Presentation:

A 40-yr old male, known case of schizophrenia on long term psychiatric medications including Olanzapine, was admitted with chief complaints of pain over the posterior aspect of the right thigh and below the knee, pus discharge from an ulcer site, fever for several days. The patient had no prior history of diabetes mellitus or metabolic disorders. On admission, his Random Blood Sugar (RBS) was 385 mg/dl and hemoglobin was 10.5 g/dl. Subsequent glucose monitoring revealed Fasting Blood Sugar (FBS) 169 mg/dl and Postprandial Blood Sugar (PPBS) 277 mg/dl. Following days showed, FBS 152 mg/dl and PPBS 340 mg/dl. Examination revealed a 10 x 5 x 3 cm ulcer over the right knee with pus discharge, local warmth and swelling extended to right foot. The patient was conscious, oriented and afebrile at the time of examination. A Diagnosis of Diabetic ulcer of the right thigh was made and the patient underwent wound debridement. He was started Piperacillin-tazobactem, metronidazole, ranitidine, metformin, paracetamol and other supportive medications. His ongoing psychiatric regimen included olanzapine 5 mg twice daily, chlorpromazine 100 mg, trihexyphenidyl 2mg, diazepam 5mg and duloxetine 5 mg. After psychiatric consultation, a diagnosis of schizophrenia with olanzapine induced diabetes mellitus was made and olanzapine discontinued. The anti-psychotic regimen was switched to Risperidone 2 mg once daily along with the continuation of other psychotropics. Over subsequent days, the patient's glucose level gradually stabilized with insulin and oral hypoglycemic, and the ulcer shows signs of healing. Follow-up glucose monitoring showed FBS 165 mg/dl and PPBS 379 mg/dl under treatment. The patient continued wound care, insulin therapy and psychiatric follow-up.

DISCUSSION:

Olanzapine, a widely used second-genration antipsychotic, is highly effective in managing Schizophrenia and Bipolar disorder but is notorious for inducing metabolic complications such as significant weight gain, insulin resistance, hyperglycemia and new onset type 2 diabetes mellitus.[1] These metabolic changes are thought to arise from olanzapine's receptor binding profile, particularly it's antagonistic effects on Histamine H1, Serotonin 5-HT2C and Muscarinic M3 receptors. These actions collectively promote increased appetite, fat deposition, altered insulin secretion and peripheral insulin resistance.[4] The incidence of Olanzapine induced Diabetes is reported to be significantly higher than that of many other atypical antipsychotics. While Hyperglycemia and weight gain are frequently documented, progression to complications such as Diabetic ulcer remains rare.[12] Most published cases report either severe hyperglycemia or diabetic ketoacidosis as initial manifestations, with only isolated reports of peripheral ulceration secondary to drug induced diabetes.[2] In the present case, a 40 yr old male with Schizophrenia developed marked hyperglycemia(RBS 385 mg/dl, FBS 169 – 165 mg/dl, PPBS up to 379 mg/dl) and a large infected ulcer (10 x 5 x 3 cm) over the right knee and foot, without any prior history of diabetes. No secondary causes of diabetes were identified and the temporal relationship with chronic Olanzapine therapy strongly supports the diagnosis of Olanzapine induced diabetes mellitus complicated by a diabetic ulcer. Following discontinuation of Olanzapine and initiation of risperidone (a lower risk antipsychotic), along with insulin therapy, oral hypoglycemic, wound debridement and antibiotics, the patient's glucose levels stabilized and the ulcer showed gradual healing. This case underscores the importance of routine metabolic monitoring for all patients receiving atypical antipsychotics, especially those on olanzapine.[14]

Baseline and periodic monitoring of fasting glucose, HbA1c, lipid profile, weight gain and BMI are critical. Prompt recognition of hyperglycemia can prevent severe complications such as diabetic foot ulcers, infection and limb threatening outcomes.[11] Where possible, clinicians should consider antipsychotics with a metabolic risk profile (e.g., risperidone, aripiprazole or ziprazidone), especially in patients with additional risk factors for metabolic syndrome.[7]

CONCLUSION:

Olanzapine, while highly effective in the management of schizophrenia, carries a significant risk of metabolic disturbances, including hyperglycemia and a new onset diabetes mellitus. This case highlights a rare but serious complication- the development of a diabetic ulcer secondary to olanzapine induced hyperglycemia in a previously non-diabetic patient. Routine metabolic monitoring, including blood glucose, HbA1c, lipid profile and weight is essential for all patients receiving atypical antipsychotics, particularly olanzapine. Early recognition of hyperglycemia, timely discontinuation or substitution of the offending drug and appropriate medical management can prevent severe complications such as diabetic ulcers, infections, and disability. Clinicians should consider antipsychotics with a lower metabolic risk profile, such as risperidone or aripiprazole, for patients with risk factors or those who develop drug-induced metabolic changes. This case emphasizes the importance of clinical vigilance and interdisciplinary care, involving psychiatrics, endocrinologists and wound care specialists, to optimize outcomes in patients who develop metabolic complications during antipsychotic therapy.

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Conflict Of Interest:

The authors declare no conflict of interest related to the publication this case report.

Informed Consent:

Written informed consent was obtained from the patient for publication of this case. A copy of the signed consent form is available with the corresponding author and will be provided upon request.

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