

Case Report

Olanzapine-induced Neuroleptic Malignant Syndrome

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ABSTRACT

Neuroleptic malignant syndrome (NMS) is a life-threatening adverse effect usually seen with typical antipsychotic drugs. Rarely, NMS can occur with atypical antipsychotics also. A 19-year-old male diagnosed as a case of acute and transient psychotic disorder developed NMS, following the treatment with an atypical antipsychotic, olanzapine 20 mg/day. The patient was diagnosed NMS, an offending agent olanzapine was immediately withdrawn, and prompt treatment by maintaining hydration and giving bromocriptine produced recovery.

Key words: *Acute and transient psychotic disorder, neuroleptic malignant syndrome, olanzapine*

INTRODUCTION

Neuroleptic malignant syndrome (NMS) is a rare, severe, potentially life-threatening adverse reaction induced by antipsychotic drugs, which is characterized by fever, muscle rigidity, autonomic instability, and mental status changes. NMS is commonly encountered by the first-generation antipsychotics. It is uncommon with atypical antipsychotics^[1] though cases have been reported with drugs such as olanzapine, risperidone, paliperidone, aripiprazole, ziprasidone, amisulpride, quetiapine, and clozapine.^[2] Here, we report a case of NMS induced by olanzapine therapy in a young male having acute and transient psychotic disorder, thereby drawing attention to occurring this fatal adverse event with the use of atypical antipsychotic olanzapine.

CASE REPORT

A 19-year-old boy with no contributory past, family, or personal history with well-adjusted premorbid personality presented with 10 days of agitation, aggressiveness, odd behavior of self-muttering, laughing without any apparent reason, and decreased sleep attended to our outpatient department (OPD), and a diagnosis of acute and transient psychotic was made. He was prescribed olanzapine 10 mg/day and lorazepam 2 mg/day. He again returned to the OPD after 3 days as his agitation and aggressiveness did not decrease. Olanzapine was increased to 20 mg/day and lorazepam 3 mg/day. Four days after this, the patient again presented in the OPD complaining of high-grade fever,

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rigidity in all four limbs, and mutism. On examination, his consciousness was altered and there was no response to commands. It was associated with fluctuation of blood pressure. He was admitted. A diagnosis of NMS was suspected. His serum creatine kinase (CPK) level was 2467 IU/L. The liver function tests were within normal limits, and the total leukocyte count was raised ($13,700/\text{mm}^3$) with polymorphonuclear leukocytosis. Noncontrast computed tomography did not reveal any abnormality. Catheterization was done and intravenous fluids were given. Adequate hydration was ensured. Olanzapine was stopped. Tablet bromocriptine 5 mg/day in divided doses was started, which was gradually increased to 15 mg/day in divided doses. He also received tablet lorazepam 4 mg/day. The patient showed marked improvement in the next 10–12 days. He started taking food orally. The rigidity decreased markedly, and he gradually started walking on his own. His serum CPK level was gradually reduced to 134 IU/L at the end of the 2nd week. Bromocriptine was gradually tapered down and stopped. As some psychotic symptoms reappeared, he was put on quetiapine at low dose and gradually increased to 200 mg/day. He was discharged in a stable condition with advice to regular follow-up in OPD.

DISCUSSION

This case shows that NMS can occur with atypical antipsychotics such as olanzapine. NMS is more common in young male patients and when symptoms such as agitation are present^[3] as in our case. A rapid escalation of dose of antipsychotic is thought to be a causal factor in the development of NMS by causing a sudden and massive downregulation of dopamine transmission. In literature, it is stated that 90% of NMS cases occur within 30 days of initiating or increasing the dosage of the offending agent.^[4] In this case, rapid escalation of dose of olanzapine to 20 mg/day within 3 days could have contributed to the development of NMS. There was an improvement after stopping the medication and appropriate treatment. As per the Naranjo's assessment scale, the probability score was 8 (probable).^[5] The clinical picture and laboratory

abnormalities were typical of NMS; rechallenge with the drug was not required. As per the WHO-UMC causality assessment system, it is "probable" or "likely" to be due to olanzapine.^[6] The patient was also assessed with the Hartwig's severity assessment scale and was found to have adverse drug reaction, requiring the suspected drug to be withheld with stay in hospital with intensive medical care, i.e. Level 5. For the above characteristics, it could be assessed as "severe."^[7]

In the presence of risk factors and in case of rapid dose escalation, NMS can occur with atypical antipsychotics such as olanzapine. We should remain cautious particularly in patients more susceptible to the development of NMS. A better understanding of this syndrome for early diagnosis and appropriate management would be helpful in reducing fatalities.

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Conflicts of interest

There are no conflicts of interest.

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