Neuroleptic Malignant Syndrome – Like State Following Levodopa Withdrawal in a Patient Taking Antipsychotics: A Case Report

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ABSTRACT

Our patient, a diagnosed case of schizophrenia, developed neuroleptic malignant syndrome-like state after sudden withdrawal of levodopa along with antipsychotics. The patient presented with persistent high grade fever, altered sensorium, rigidity, tremors, increased salivation. He was successfully treated with symptomatic treatment. Clinicians should be aware of the risk of sudden cessation of dopamine agonists.

Keywords: Antipsychotics, Levodopa Withdrawal, Neuroleptic Malignant Syndrome

INTRODUCTION

Neuroleptic malignant syndrome (NMS) - like state is a rare but potentially fatal complication of sudden withdrawal of Dopamine Agonist medication. Clinical features are similar to NMS viz. hyperthermia, autonomic dysfunctioning, altered sensorium, muscular rigidity.[1-2] Here, we present a case of sudden withdrawal of levodopa along with antipsychotics resulting in neuroleptic malignant syndrome-like state. Doctors should be aware of the risk of abrupt cessation of dopamine agonists. Maintaining vigilant awareness of the clinical features of NMS to diagnose and treat the disorder early remains the most important strategy by which physicians can keep mortality rates low and improve patient outcomes.[3]

CASE REPORT

A 38 year-old man was a known case of schizophrenia for 2 years and was on treatment from a private practitioner (on-off). For the last two months, he was on regular Tab. Risperidone 2 mg/day, Tab trifluoperazine 5mg twice a day. After a few days, the patient experienced tremors in both upper and lower limbs and mild rigidity, for which he was referred to a Neurophysician. He was started on Tab levodopa 100 mg 3 times daily. After 15 days of continuous intake of antipsychotics along with levodopa, he started complaining of decreased appetite, tremors and family members noticed an increase in intensity of psychotic symptoms . Three days prior to the admission in our hospital all medication, including antipsychotics and levodopa, were discontinued at home.

He was admitted to our hospital for fever together with altered sensorium, difficulty in walking and swallowing food, not able to open mouth, tremors in all the four limbs, increased salivation for the last 2 days after the stoppage of drugs. He was drowsy, with GCS score -12 with an oral temperature of 102 F, pulse 130/min, O2 saturation of 96% on room air, blood pressure 90/70mmHg, tachypnoea, increased perspiration, and severe generalized rigidity. His Computed tomography of the brain was within normal limits. On admission, his total leukocyte count level was 17300 cells/ cumm, serum creatinine was 1.5 g/dL, Creatine Phosphokinase (CPK) level was around 300 U/L (reference range, 50-200 U/L). Other laboratory studies were all within normal limits.

All medications were stopped and supportive care measures were given, including application of a cooling blanket and infusion of cooled normal saline provided for hyperpyrexia. The dose was tapered. He regained consciousness on day 3. Fever and rigidity gradually subsided on day 4 and day 6 respectively. NMS secondary to withdrawal of dopaminergic agents was diagnosed. However, his psychotic symptoms relapsed, he started hearing voices which others cannot hear, believing that people or family members are talking about him and are going to harm him and irritability. The decision was made to start Quetiapine,considering the propensity of adverse effects. Low dose Quetiapine 50 mg at bedtime and gradually titrated up to 200mg at night, after which the patient improved within 2 weeks without any recurrence of psychotic symptoms. Patient was discharged on Tab Quetiapine. During a follow-up period of one month, the patient maintained his recovery.

DISCUSSION

Our present case, with a diagnosis of Schizophrenia, developed tremors, rigidity, disturbed consciousness, elevated body temperature, following abrupt discontinuation of levodopa in combination with antipsychotics.

No neuroleptics were used but the symptoms resembled neuroleptic malignant syndrome characterized by hyperthermia, autonomic hyperactivity, muscle rigidity, varying levels of impaired consciousness. The rapid rise in body temperature, tachycardia, extreme rigidity and increased confusion leave a little doubt that the patient had NMS.

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Neuroleptic malignant syndrome includes a tetrad of altered mental status, muscle rigidity, hyperthermia, and associated with neuroleptic drugs use. Evidence from studies suggest an incidence rate for NMS of 0.01-0.02 % treated with antipsychotics. The onset of symptoms varies from hours to days after drug initiation. It has been estimated that some patients with NMS develop the condition within 24 hours of initiation of antipsychotic treatment, most within the first week, and virtually all cases inside 30 days.[5]

Our patient developed EPS and was started on Tab Levodopa as prescribed by a Neurophysician. The patient's attendant discontinued antipsychotic and Levodopa on their own some days before the onset of the symptoms, making antipsychotic a less likely cause of his NMS. Since the syndrome developed within 3 days of cessation of levodopa, it seems likely due to a sudden decrease in dopaminergic drive.

The illness is often mistaken for serotonin syndrome, malignant hyperthermia, malignant catatonia, or generalized medical causes like central nervous system infection, systemic infection, lesions, seizures, heat stroke, acute dystonia, thyrotoxicosis storm, or overdosages of drugs like phencyclidine, cocaine.[4]

NMS should be recognised as a possible consequence of a severe levodopa withdrawal reaction. It is more likely if the disease is in an advanced stage or if levodopa or anti- Parkinsonian drugs are stopped abruptly.[5] Supportive remedy is the crucial step. Volume resuscitation needs to be aggressive. Serial tracking and correction of electrolyte disturbances is critical. Physical cooling needs to be carried out for excessive hyperthermia. Pharmacological remedy is primarily based totally on case reviews and medical experience. There isn't any general consensus on unique pharmacological treatment.[3]

The sudden discontinuation of levodopa can lead to marked hypofunction of all dopaminergic neurons in the brain. Therefore, a wide recognition of the disorder is necessary and the doctor should be aware of the risk associated with abrupt cessation of dopamine agonists as any delay in treatment or diagnosis could result in significant morbidity.

CONCLUSION

Neuroleptic malignant syndrome is a potentially fatal disease. Diagnosis is primarily based on high suspicious indicators, early recognition of typical symptoms and signs, and availability of supporting laboratory results. Clinicians should be aware of the NMS- like state, which can be induced by sudden withdrawal of Levodopa. We would also like to highlight that levodopa should be avoided to treat EPS in a case of psychosis as it might aggravate the psychotic symptoms.

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