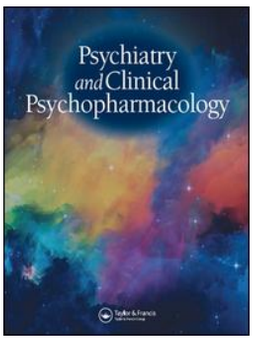

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Case Report

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Suicide Attempt with High Dose Long Acting Methylphenidate Ingestion: A Case Presentation

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ABSTRACT:

Suicide attempt with high dose long acting methylphenidate ingestion: a case presentation

Attention Deficit and Hyperactivity Disorder (ADHD) is among the most commonly encountered neurodevelopmental disorders in childhood with its reported worldwide prevalance as 5%. Among the recommended treatment regimens as stimulants, the most frequently advised ones are methylphenidate (MPH) preparates. Among long acting MPH preparates, the form that contains an osmotic release oral system (MPH-OROS) is frequently used in clinical practice. Studies about risks, causes and outcomes regarding high dose MPH intake and effects of high dose MPH preparates in humans are limited. This article presents the clinical picture of a 12 year old boy who attempted suicide by ingesting 15 tablets of 36- mg MPH OROS. Exposure to an overdose of MPH-OROS exhibited acute sympathomimetic toxicity but no life-threatening symptoms in this patient. This case report might suggest that higher doses of MPH-OROS could be tolerated well under fine clinical observation and management; although more larger scale studies in this field would be required.

Keywords: long acting methylphenidate, MPH OROS, suicide, intoxication, drug safety

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INTRODUCTION

Attention Deficit Hyperactivity Disorder (ADHD) is among the most commonly encountered neurodevelopmental disorders in childhood with reported worldwide prevalance as 5%[1]. Current practice parameters underline importance of utilizing combination of educational, behavioral, and familial approaches along with pharmacological interventions as treatment modalities[2]. Stimulants are the most common type of medications used for the ADHD and methylphenidate (MPH) preparations are the most frequently prescribed ones[3]. Among long acting MPH preparations, the form that contains osmotic release oral system (MPH-OROS) is frequently used in clinical practice since is said to remain efficient for 10-12 hours and does not require multiple dosing throughout the day[4]. MPH is reported to have broad margin of safety and tolerated well[4]. Studies about risks, causes and outcomes regarding high dose MPH intake and effects of high dose MPH in humans are limited[5,6]. Mechanism of MPH toxicity is primarily related to excessive extracellular

dopamine and norepinephrine. Symptoms include headache, abnormal movements, rigidity, mood and behavior changes, hallucinations, hypertension, tachycardia, chest pain, and vomiting[7]. This article presents clinical picture of a 12 year old boy who attempted suicide by ingesting 15 tablets of 36 mg MPH OROS.

CASE PRESENTATION

The case was a 12 year old 6th grader boy. He was diagnosed with ADHD when he was 7 years old and had been on stimulants since then in altering doses. Patient had no history of other psychiatric or neurological conditions, substance abuse or suicide attempts. His developmental history and intellectual capacity were within normal limits and was doing fine academically. In his family; his brother was diagnosed with ADHD, father with major depressive disorder and uncle of father with bipolar disorder. At the time of suicide attempt, he was on 36 mg/day MPH OROS monotherapy and had been using the medication in that dose for 1.5 years. He was 155 cm and 40 kg. He received no other medications, did not report depressive symptoms nor any alterations in mood, had no suicidal ideation prior to this suicide attempt. He had issues with anger management and experienced conflicts with his parents home. On the day of suicide attempt, he argued with his parents and took 15 tablets of 36 mg MPH-OROS (540 mg, in total) impulsively. Shortly after intake, he informed his parents and they all went to an emergency room of a state hospital. Within an hour of the suicide attempt, he was given active charcoal and 500 ml normal saline solution. On the way in ambulance and upon arrival at hospital, he was described to be hyperkinetic, talked too much but could not stay on one subject and seemed very distressed. He was described having motor jerks, had tingling sensations throughout his whole body, his heart raced, and felt restless. He did not have any alterations regarding his consciousness at any point or did not have any seizures. He was disoriented, had visual and tactile hallucinations, was slightly agitated and logorrheic so it was not possible to perform full psychiatric examination at that point. His body temperature was elevated (38.2°C), along with heart rate (138/min) and blood pressure (145/92 mmHg). His blood tests at this time came back normal. Upon initial clinical stabilization, he was transfered to a children's hospital to be observed and evaluated by a child and adolescent psychiatrist. Upon staying overnight being monitored, he was discharged the following day. His physical examination, laboratory tests, and cardiac monitorization were normal at discharge. He reported feeling thirsty a lot, experiencing conflicting emotions, not being able to fall asleep although he felt worn out. He was scheduled an appointment from the child psychiatry unit three days later. No physical or psychological symptoms related to MPH toxicity were reported in the follow up.

DISCUSSION

This article presents the clinical picture of a 12 year old boy who attempted suicide by ingesting 15 tablets of 36- mg MPH OROS (540 mg, in total). Toxicity symptoms in case of ingesting higher doses are similar to ones observed with receiving other sympatomimetic agents in high doses. These include headache, abnormal movements, rigidity, mood and behavior changes, hallucinations, hypertension, tachycardia, chest pain, vomiting[7]. Our case experienced most of these symptoms.

Reports of long-acting MPH toxicity are mainly limited to case reports in literature. Majority of methylphenidate overdoses have presented with moderate severity, but fatalities have been reported as well[5,8]. Toxic dose of MPH OROS preparates is not clearly known; but generally, doses above 2 mg/kg are considered dangerous and need to be followed up in an emergency unit and require administration of active charcoal if the patient has arrived in proposed time limits, which would be within approximately 2-3 hours after ingestion[7]. Amount of intake in our case was 13.5 mg/kg which was considered to be a very high dose. As the case had initially arrived an hour after ingesting MPH, he was given active charcoal and started on fluid replacement for support.

In many MPH overdose cases, serum MPH levels were assessed[6,8]; however it was not possible to evaluate this in our case which might be considered a limitation. On the other hand, there are studies that indicate that very similar to amphetamine toxicity, monitoring serum MPH concentrations provide limited clinical usefulness and is not recommended since serum MPH concentrations do not necessarily correlate with clinical picture[5]. Limited number of case reports exist with patients reported to have not needed further medical intervention and making full recovery[8-11].

Although this case did not develop life threatening conditions that would require further medical assistance, given the family history of mood disorders and the case's difficulties in anger management along with primary diagnosis as ADHD, there is a possibility that the clinical course might develop into further impulsive and risky behavior along with possible mood swings, and a risk for emerging comorbidities in the future including mood disorders, underlining the need for closer follow up. Even though this case report might suggest high doses of MPH-OROS could be tolerated well under fine clinical observation and management; more studies and clarification in this field would be required.

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