

Case Report

Mephentermine Dependence with Induced Psychosis

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Abstract

Background: We report a case of mephentermine dependence in a 31-year-old professional weightlifter taking high doses of mephentermine sulfate with history of induced psychosis.

Case description: The patient was a professional weightlifter who was trained by special instructors and administered anabolic steroids (nandrolonedecanoate 100 mg and testosterone 80mg) and mephentermine (1 mg) for improving performance in national tournaments. Patient became dependent on mephentermine since 2 years and his current consumption increased to 150 mg – 300 mg per day since 3 months. He developed mephentermine induced psychosis with behavioural problems and persecutory delusions. Remission of psychosis was seen with stoppage of the substance with symptomatic antipsychotic medication for behavioural control and thought disorder (German J Psychiatry 2012; 15(2): 69-71).

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Introduction

Mephentermine is N,α,α-trimethylphenethylamine-sulfate dehydrate and is used as a vasopressor agent with a sympathomimetic action. It is structurally similar to methamphetamine. It is available as an oral tablet and intramuscular or intravenous injection. The onset of action is prompt (within 5 to 15 minutes), and the duration of action lasts up to 4 hours after intramuscular injection. Mephentermine is used to prevent hypotension, which frequently accompanies spinal anaesthesia (Sweetman, 2009). It has euphorogenic and relaxing effects. Both mephentermine and phentermine are stimulants whose use is prohibited by the World Anti-Doping Agency (WADA) (Docherty, 2008). The authors report a case of mephentermine dependence with induced psychosis.

Case Report

A 31-year-old male professional weight-lifter representing a government organisation with several awards and medals to his credit, started the use of intramuscular anabolic steroids (nandrolonedecanoate 100 mg and testosterone 80 mg) and mephentermine 1 mg in the year 2005. The patient used it intramuscularly once a week for 4–6 weeks, a month before the tournament, to boost his performance. Over the years (since 2005), he started misusing mephentermine for recreational purpose on a regular basis as he felt relaxed and euphoric. He would become restless, anxious and agitated if he did not take the intramuscular mephentermine. He started abusing it unknown to his family members, except for his younger brother who procured mephentermine for him from the local chemist as over the counter (OTC) drug. The consumption increased from 2 vials per week (2–3 ml per day) of mephentermine injections (Termin® 30 mg/ml) in 2009 to 7 to 8 vials per week by 2010. Since the last

3 months the patient was consuming 5ml (150mg) to 10ml (300mg) per day of mephentermine intramuscularly in divided dosages. The last use of intramuscular anabolic steroids was one year ago before his last tournament. Since 2 years, the patient qualifies the criteria of chemical dependence for a substance according to ICD-10 (WHO, 1992) by meeting five out of six criteria: strong desire or sense of compulsion to use the substance, impaired control, withdrawal, tolerance and persistence despite harm. The patient was brought by his relatives in the emergency services department of general municipal hospital with complaints of sudden onset of aggressive abusive behaviour associated with sleep since one month. He had become suspicious and fearful of his friends who were local goons and felt that they were keeping a continuous watch on him, conspiring to trap him in a drug deal or a murder case and were going to harm him. He felt that his sister was also involved with them, that they were jealous of him and were trying to malign his image. He therefore called the police for his protection twice. He stopped going to work and expressed death wishes.

On mental status examination, the patient was restless, rolling an acupuncture device in his hand. He had delusions of reference and persecution but no perceptual abnormality. On general examination, pulse and blood pressure recorded were 102 per minute and 148/110 mmHg, respectively. His height and weight were 175 cms and 90 kgs, respectively. There were scar marks over his right and left arm, buttock region with blackish discolouration over lateral aspect of thighs and right shoulder region. He was admitted in psychiatry ward and a medical opinion was taken to rule out secondary hypertension and cardiovascular side effects. Renal and liver function tests, lipid profile, electrocardiography and chest radiography did not show any abnormality. Urine for substances (alcohol, cannabis, morphine, heroin, and MDMA) was negative. Ultrasonography of abdomen was suggestive of fatty liver. As the patient was unmanageable and had florid psychotic symptoms, he was started on risperidone (4 mg) and trihexyphenidyl (4 mg) in divided dosages. His psychosis has improved and he has stopped taking mephentermine. No deleterious medical side effects were evident on history, examination and investigations. He has started going to office but has been lost to follow up.

Discussion

There are few cases of mephentermine misuse or dependence reported in the literature. Joshi & Bhat (1988) reported an exacerbation of psychotic symptoms following intramuscular use of mephentermine in doses of 120–150 mg, although the patient had presented with a prior history of amphetamine-induced psychosis. Basu & Nebhinani (2009) reported a case of intravenous mephentermine dependence without any psychotic features. Similarly, De Sousa et al (2010) reported a case of mephentermine dependence without psychotic features at a dose of 120–180 mg once or twice a week. Mephentermine dependence in combination with buprenorphine and promethazine has also been reported in literature (Mendhekar et al., 1999). To our knowledge,

no case reports of only mephentermine dependence with induced psychosis have been documented.

Mephentermine acts at monoaminergic synapses and cause release of monoamines (noradrenaline, dopamine and serotonin) in the brain (Docherty, 2008). Mephentermine undergoes demethylation to form amphetamine (King & Ellinwood, 1997), which is an indirectly acting sympathomimetic CNS stimulant and a potent releaser of dopamine and noradrenaline (Docherty, 2008). The euphorogenic and stimulant action of amphetamines on brain make it a liable substance for abuse and dependence (Sweetman, 2009).

Since the consumption of mephentermine in our patient increased during the last 3 months, it had probably induced paranoid psychosis at higher dosages. It has been reported that mephentermine in large doses may produce central nervous system (CNS) stimulation with symptoms like anxiety, drowsiness, incoherence, hallucinations and convulsion (Sweetman, 2009).

The probable reason for psychosis seen in mephentermine dependence could be its demethylation to amphetamine. The symptom profile in our case had significant persecutory delusions, which are usually seen in amphetamine-induced psychosis, though no hallucinations were reported. At high doses or in vulnerable individuals, amphetamines can lead to prominent CNS effects like agitation, psychosis, hallucination, delirium, etc. (McCann & Ricaurte, 2009).

On a weekly follow up, with complete stoppage of mephentermine, the patient improved with a reduction in his persecutory delusions and aggressive behaviour. He also resumed his work.

In spite of consuming mephentermine at high dosage, the patient did not develop any significant cardiovascular side effects, except tachycardia and raised systolic blood pressure. This could be because of the patient being a professional weightlifter; he had an enhanced muscle mass with his weight being in the 100 kg category.

The fact that patient could get mephentermine as over-the-counter drug also calls for distinctive rules, regulation and legal enforcement by concerned government authorities for procurement of drug mephentermine and its derivatives to prevent its misuse, which is still not very well documented in literature (De Oliveira JR, 2009).

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