

## Case Report

# MEPHENTERMINE ABUSE FOR STAMINA, RESULTING IN MANIA - A CASE REPORT

Pranav V Nair<sup>1\*</sup>, Bindhya Babu<sup>1</sup>, Zoheb Raj<sup>2</sup>, Sushil Kakkan<sup>3</sup>

<sup>1</sup>Junior Resident, Department of Psychiatry, KMCT Medical College, Kozhikode

<sup>2</sup>Associate Professor, Department of Psychiatry, KMCT Medical College, Kozhikode

<sup>3</sup>Professor and HOD, Department of Psychiatry, KMCT Medical College, Kozhikode

\*Corresponding address: Department of Psychiatry, KMCT Medical College, Mukkam, Kozhikode, PIN - 673602. Email: pranav271@gmail.com

### ABSTRACT

Mephentermine is an amphetamine-like drug used to treat hypotension. There have been case reports of mephentermine abuse in India, some associated with psychosis. This is the first to be associated with mania and the first reported from Kerala. We report the case of an adult male with a three-month history of irritable mood, increased energy and various other manic symptoms. Interview revealed three years history of intravenous mephentermine use for athletic enhancement that evolved to a dependence pattern. Higher mental function evaluation revealed deficits in concentration and recent memory. He was started on a combination of antipsychotic and mood stabilizer; psychoeducation was also initiated. Mania went into remission over three weeks but dependence continued, and the patient was then lost to follow-up. We expect this case report to increase awareness among both clinicians and the public and to start an investigation into the prevalence of this problem in at-risk populations.

**Keywords:** mephentermine, mania, athletics, stimulant, dependence

### INTRODUCTION

Mephentermine is a cardiac stimulant related to the class of amphetamines. It appears to work as a sympathomimetic agent, causing increased norepinephrine release and acting as an agonist at the alpha-adrenergic receptor. It is primarily used in clinical medicine as a vasoconstrictor, to combat hypotension in spinal anesthesia, as an interim drug in hypotensive shock, and as a nasal decongestant. However, there are many case reports that it is being misused for its stimulant-like properties despite theoretically not having quite the same effect on CNS as

amphetamines.<sup>1</sup> Published reports talking about this, including in India, recognize that at least in some of these cases, mephentermine abuse results in psychiatric morbidity beyond dependence alone. While cases have been reported across India, this is the first case report, to our knowledge, that documents an episode of mood disorder, most probably induced by mephentermine abuse. To our understanding, this is also the first case report of mephentermine abuse of any kind from Kerala. With this case, we wish to bring to attention a growing problem in some

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populations that may be going under-reported and unnoticed.

### **CASE REPORT**

Mr. Z is a 38-year-old married Muslim male, formerly a manual labourer, currently not gainfully unemployed and educated till 10<sup>th</sup> standard. He presented to the Outpatient Department, brought by a close friend. He was actively involved in bodybuilding and athletics, primarily the sport of tug-of-war. He complained of racing thoughts, distractibility, being increasingly irritable all the time, forgetfulness and “getting carried away with whatever he was doing” for the past three months. The friend confirmed this and reported that he was excessively talkative, always irritable, getting angry, and picking fights at the slightest provocation. He was overfamiliar with individuals, starting arguments with persons with whom he was not personally acquainted, even those in positions of authority. As a result of these behaviors, he was dismissed from his job a month back.

The patient denied that the problems had been that severe, although he admitted that his behavior now was different and that he would not have done this before. He also reported a decreased need for sleep, with a constant need to be engaged in activities, and significantly increased libido and sexual activity with his wife, which he acknowledged was causing difficulties for his wife and impairment in their marital relationship. Further, on a detailed assessment of history, the patient revealed that he had been regularly using intravenous mephentermine for the past three years. He was initially introduced to the substance by his sports teammate, who claimed that it would boost his performance. He reported that he had increased strength and vigor after using it, felt less exhausted than before from doing the same activities and performed better in sports. He quickly began using it for the perceived benefits on a daily basis, starting at 5ml per day of 30mg/ml solution. This progressed over the

course of three years to a usage pattern of around 20 ml per day of the same solution, as he could no longer achieve the same effect with the smaller dose. He had an intense craving for the substance and would self-medicate with it when stressed, claiming it helped relieve his stress. He occasionally thought about cutting down on the substance but was ultimately unsuccessful in doing so and never seriously attempted abstinence. He complained of feeling weak, restless, and anxious whenever the dose was reduced. Past history was not significant and family history was positive for substance use disorders.

### **Clinical findings**

Mental status examination revealed a restless individual with increased psychomotor activity, pressured speech and prolixity of thought with elevated and irritable mood with no perceptual disturbances. Assessment of higher mental function showed a conscious and oriented individual with impaired attention and concentration on digit span test and serial subtraction, as well as some deficits in recent memory. The patient had Grade 3 insight into his manic symptoms but was in the contemplation phase regarding his usage of mephentermine and ambivalent about the possibility of it contributing to his current problems. General physical examination showed multiple puncture marks over the left arm with an elevated blood pressure of 160/90 mm Hg. Systems were within normal limits.

### **Diagnostic assessment**

A provisional diagnosis was made as per DSM-5 of F15.24 Severe Mephentermine [Stimulant] Use Disorder with Mephentermine-induced Bipolar and Related disorder. Baseline Young Mania Rating Scale [YMRS] scoring showed a score of 26, indicating moderate mania. All relevant baseline investigations were done, which were within normal limits. He was counseled about the need for neuroimaging, considering his cognitive deficits and potential unknown hazards and risks of using the

substance. However, he deferred due to financial constraints.

### **Therapeutic intervention**

The patient was advised inpatient management for de-addiction but refused, and hence, managed on an outpatient basis. He was started on a combination of Risperidone 2 mg and a divided dose of Sodium Valproate 1000 mg. He was psychoeducated on the nature of the illness and the further consequences and health hazards of continued substance use and dependence and advised to follow up after one week and three weeks.

### **Follow-up and outcomes**

His target manic symptoms had subsided in three weeks, with a YMRS score of 9, and the bystander corroborated that his social functioning had improved in that period. He was tolerating medications well. However, he admitted that he was continuing mephentermine use and was rationalizing that he needed it to function effectively in athletics and his daily life. He subsequently became lost to follow-up.

### **DISCUSSION**

A thorough screening for substances beyond those routinely seen in practice enabled us to pick up on a newer and rarer kind of substance abuse, and one which explained the current clinical presentation, which would otherwise have been missed, and probably misdiagnosed as a primary mood disorder. On examining the available literature, it is striking that most case reports regarding mephentermine misuse have been reported in India, particularly concerning parenteral use. In contrast, misuse of inhalers has been reported from the USA<sup>2</sup>. These reports describe a varying dosage range from 60 mg/day<sup>3</sup> to as high as 1500 mg/ day<sup>4</sup> in dependence pattern of use. In our case, we report usage of 600 mg/ day. Not surprising and worrisome is the fact that most of these cases involve athletes, sportspersons and gymnasium workers using the substance to boost

performance, stamina and endurance.<sup>5,6,7,8,9,10</sup>. Our patient falls into this patient profile. Cases of psychosis resulting from mephentermine abuse are not uncommon among these; often, psychotic symptoms may be the only reason the patient is brought to medical attention.<sup>5,6,7</sup> It is to be noted that the usage of mephentermine is prohibited by the World Doping Agency because of its performance-enhancing abilities. To the best of our knowledge, this is the first report of a case of mephentermine dependence with an induced mania and the first case report of mephentermine from Kerala.

### **CONCLUSION AND FUTURE DIRECTIONS**

It appears that mephentermine abuse is becoming more widespread across India. It is worrying that this seems to have spread to Kerala as well. News media have also picked up on this trend and started reporting on it. However, general awareness appears to be relatively low among the public and medical practitioners. It seems not only quite capable of inducing mood and psychotic disorders, which cause much morbidity but also poses major physical health hazards, including hypertension, hepatic failure and even cognitive issues, among others. Much further research is needed in this area. A community survey with assured anonymity regarding the prevalence and practices of use of mephentermine and other similar substances, performance enhancers and anabolic steroids among at-risk populations such as sportspersons, athletes, bodybuilders, fitness enthusiasts, gymnasium workers, physical trainers may be warranted to understand the scale of the problem.

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