CASE REPORT

A Case Report of Armodafinil Abuse in Chronic Schizophrenia

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Abstract

Introduction: Armodafinil is a psychostimulant. It is typically prescribed for conditions like obstructive sleep apnea and narcolepsy, as well as for cognitive enhancement. It has been previously reported to have low abuse potential. However, in this particular instance, we encountered a case of a patient with schizophrenia, abusing armodafinil.

Case description: We have described a long-standing schizophrenic individual admitted to the Medicine Department of Assam Medical College and Hospital due to hematemesis. Despite being non-adherent to prescribed psychiatric medication for psychotic symptoms, he began abusing armodafinil, leading to dependence and ultimately manifesting with frank psychotic symptoms. To the best of our knowledge, this is the first case of armodafinil abuse reported from the eastern zone of India.

Conclusion: Armodafinil is considered to have lower abuse potential. However, its easy availability in India is contributing to an increase in misuse. To alleviate this, legal measures should be implemented to restrict its availability, ensuring it is only accessible with a proper prescription from a registered medical practitioner.

Keywords: Armodafinil abuse, Case report, Chronic schizophrenia, Modafinil.

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Introduction

Armodafinil is an enantiomer of Modafinil which is a psychostimulant medication.[1,2] It is recommended for severe obstructive sleep apnea syndrome, narcolepsy, shift work sleep disorder, as cognitive enhancer and in cocaine dependancy.[3,4] Although early study suggested a low risk of misuse, contradictory findings from later studies have raised doubts about it.[3,5,6] Till now three cases were reported of Modafinil abuse in India.[1,7,8] But to the best of our knowledge, there is no reported case on armodafinil abuse in this country. In this instance, we have reported a case of chronic schizophrenia patient abusing armodafinil.

Case Description

The Department of Medicine notified us about a patient of 46 years old male, who had been hospitalized after blood vomiting from an oral and gastric ulceration. For the previous 20 years, the patient has been ingesting 8–10 sachets of chewing tobacco (in the form of gutka) every day. After more inquiry he was found to have schizophrenia and a history of irregular medication use. He was diagnosed with depression after exhibiting signs like irritation and poor mood during his school (Class XII). Nevertheless, he started chewing gutka every day and found it difficult to follow his doctor's prescription schedule. Later, he read up about armodafinil in a magazine eight years ago. At which point he started taking 200 mg of it in the morning time to improve his mood. Subsequently, his diagnosis was revised to schizophrenia. In order to counteract the drowsiness caused by antipsychotic medications, he augmented the dosage of armodafinil to 400 mg. They were unable to provide any records of his previous treatments since he lived in the barracks, away from his family and under the supervision of individuals at his workplace. Even in periods when he was not using antipsychotic medications, he would still regularly consume armodafinil to experience its stimulating effects.

However, in the absence of antipsychotic medications, his psychotic symptoms did not improve. He increased the armodafinil dosage progressively to 600 mg in order to maintain the appropriate degree of stimulation. But he raised the dosage to 800 mg per day since he was uncomfortable from paranoid thoughts. But the paranoid symptoms did not relieved, only he got the stimulating effect. He had headaches, tremors, anxiety, and tiredness whenever he attempted to discontinue using armodafinil.

Management

As he was in frank psychotic state, he was treated with antipsychotic medications only. Then he was shifted to ICU because of his physical condition and no treatment could be given for armodafinil dependence.

Discussion

Dopamine levels are raised when modafinil blocks the dopamine transporter (DAT) in the prefrontal cortex and other parts of the brain. It also influences serotonin transporter (SERT) and norepinephrine transporter (NET) function.[3,9] Modafinil is

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known to increase excitatory glutamatergic neurotransmission activity in many parts of the brain.[10–12] This increased dopamine activity can be the cause of its abuse and dependency.[13,14] 90% of the concentration of modafinil is made up of armodafinil. The R enantiomer has a longer elimination half-life and is more metabolically stable.[15,16] When it comes to the DAT, the R enantiomer has a three times higher affinity than the S enantiomer. Moreover, it increases histaminergic and glutaminergic activity while suppressing GABAergic input.[13–17] Prescribed dose for armodafinil is 50–250 mg.[18] It improves executive functions such as attention, impulse control, and memory processes.[19] It is abused to extend alertness and productivity during lengthy, repeated shifts, prevent sleepiness, improve secondary episodic memory and minimize attentional slips.[20–27] Signs of increased lethargy, hand tremors, anxiety, irritation, nervousness and irregular sleeping patterns emerged when modafinil is missed.[1,28,29] Its addiction is usually treated with a tapering off the armodafinil dosage over time and using drugs like bupropion, benzodiazepines, sometimes in conjunction with mood stabilizers.[1,8]

Since increased dopaminergic activity may cause or exacerbate psychosis, the use of modafinil or armodafinil in the treatment of schizophrenics is controversial.[30–32] Similarly, increased doses of armodafinil may made our patient's psychotic symptoms worse even though he was a diagnosed case of schizophrenia.

Conclusion

The most frequently methods of obtaining modafinil are through online channels, followed by acquiring it from a friend, dealer or using someone else's prescription. Additionally, some individuals access the drug over the counter in countries where its purchase is lawful.[33] This is a schedule IV non-narcotic drug.[34–36] It should be categorized under a stricter schedule and be subjected to strict regulatory restrictions to avoid its misuse.

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