10.5005/jp-journals-10069-0022

CASE REPORT

Mirtazapine Induced Parasomnia Overlap Disorder

[1]Mahismita Patro, [2]Dipti Gothi, [3]Ram B Sah, [4]Sammer Vaidya

ABSTRACT

A 70-year-old non-addict man with the history of diabetes, hypertension and allergic rhinitis was referred for abnormal behavior during the night. The behaviors included shouting, punching, walking during sleep, leaving the house and dream enactment. He also had history of snoring and excessive daytime sleepiness, suspicious of obstructive sleep apnea (OSA). He was suffering from depression for which he was on antidepressants, i.e., mirtazapine, sertraline and olanzapine by a psychiatrist. The abnormal sleep behaviors developed after start of mirtazapine. After ruling out all other causes, he was finally diagnosed to be suffering from drug-induced parasomnia overlap disorder (POD) caused by mirtazapine along with OSA based on international classification of sleep disorders–3rd edition (ICSD-3). He had resolution of the parasomnia episodes after stoppage of mirtazapine.

Keywords: Nonrapid eye movement (NREM) parasomnia, POD, Rapid eye movement (REM), Sleep behaviour disorder (RBD)

How to cite this article: Patro M, Gothi D, Sah RB, Vaidya S. Mirtazapine Induced Parasomnia Overlap Disorder. Indian Sleep Med 2018;13(2):36-38.

Source of support: Nil

Conflict of interest: None

INTRODUCTION

POD refers to the coexistence of NREM parasomnia and REM RBD in the same individual.[1] Drugs like selective serotonin reuptake inhibitor (SSRI)s and mirtazapine are known to cause or exacerbate RBD.[2,3] Mirtazapine and olanzapine have also been reported to be associated with NREM parasomnia of somnambulism.[4,5] But to the best of our knowledge, there is only one case report of drug-induced POD caused by paroxetine, a SSRI has been described.[5] Here we present another case of drug-induced POD caused by mirtazapine.

CASE REPORT

A 70-year-old non-addict man presented to us for abnormal behavior during sleep since last 5 months. His medical history included diabetes, hypertension and allergic rhinitis since eight years, for which he was on regular treatment. He was also diagnosed with depression by a psychiatrist, for which he was on treatment with sertraline and olanzapine since last eight months. Mirtazapine was added because his depression was not responding. He also had history of loud habitual snoring with nocturnal choking during night. The duration of sleep varied from 6 to 8 hours, but the sleep quality was disturbed with frequent sleep fragmentation. There were few episodes of witnessed apneas. He also had cognitive deficits and mood changes, with predominant depression.

His abnormal sleep behaviors consisted of shouting, punching, leaving the bed and walking. Once he was found roaming outside the house in sleep, the bystanders had to bring him back home. When aroused from sleep, he would be confused and had amnesia of the activities. However, he did not have any signs of autonomic arousal. These suggested the presence of NREM-related parasomnia. He also had dream enactment behavior. The events were associated with dreams such as being robbed, or chased. This once resulted in beating his wife based on theft-related dreams. When woken up, he had recollection of those events, suggesting the presence of a RBD. These behaviours were observed only after the start of mirtazapine. He reported no previous history of parasomnia. There was no family history of parasomnia.

On examination, his vital parameters were stable with pulse rate of 90/min, blood pressure of 140/90 mm Hg, and oxygen saturation of 98%. He had average body built with body mass index of 21.1 kg/m^2 and neck circumference of 39 cm. Systemic examinations were normal. The routine blood investigation showed hemoglobin of 13.9%, total leukocyte count of 7400, urea of 35 mg/dl. His blood sugar level was deranged with fasting level of 189, post-prandial level of 227 mg/dl and HbA1C–6.04. Lipid profile, thyroid profile was normal. His awake electroencephalogram and magnetic resonance imaging of brain were normal ruling out any structural brain lesion.

Mirtazapine was stopped to assess the possibility of POD induced by the medication. Overnight full polysomnography was performed with continuous video monitoring. It showed sleep efficiency of 28% with N2 predominant sleep and apnoea-hypopnoea index of 27.

[1,4]DM Fellow, [2] Professor, [3]Medical Officer

[1-4]Department of Pulmonary Medicine, Employees' State Insurance Model Hospital, Basai Darapur, New Delhi

Corresponding Author: Dipti Gothi, Professor, Department of Pulmonary Medicinem Employees' State Insurance Model Hospital, Basai Darapur, New Delhi, e-mail diptigothi@gmail.com

The periodic leg movement during sleep (PLMS) index was 52. But he did not have any episode of parasomnia that day, probably secondary to stoppage of mirtazapine. However based on the clinical criteria using ICSD-3, he was finally diagnosed with OSA with comorbid insomnia and depression, and drug-induced POD.

Continuous positive airway pressure (CPAP) was prescribed for OSA. He had complete resolution of the parasomnic episodes on stopping mirtazapine. But his depression was ongoing. Then he was also advised for substitution of other antidepressants with clonazepam 0.5 mg at bedtime and escitalopram 10 mg in the morning by the psychiatrist. On the follow-up visit he was sleeping well and did not have depression or parasomnia.

DISCUSSION

Parasomnias are disorders characterized by the occurrence of complex motor or behavioural events or experiences at sleep onset, within sleep or during arousal from sleep. These can occur during any stage of sleep. The recent ICSD-3 classifies parasomnias to be of following types: NREM-related parasomnias, REM-related parasomnias, other parasomnias and isolated symptoms and normal variants.[1]

POD refers to the coexistence of RBD and one or more of the NREM parasomnias in the same individual. POD was first described in 1997 with a series of 33 cases. POD can be idiopathic or associated with conditions such as narcolepsy, multiple sclerosis, Moebius syndrome, brain tumor and psychiatric disorders.[6] POD is considered a variant of RBD but it is associated with younger age of onset as compared to RBD and prominence of NREM parasomnia over RBD features. Oana Dumitrascu et al. in their case series involving five patients have proposed that POD is a distinct pathophysiological parasomnia rather than a variant of RBD.[7]

The diagnosis of POD requires the diagnostic criteria for both NREM parasomnia and RBD to be met. Our patient had confusional arousal and sleep walking amongst the NREM parasomnias. He satisfied all characteristics for RBD except for demonstration of REM sleep without atonia on polysomnography. On the day of study, he did not have any parasomnia because mirtazapine was stopped by that time.

Acute RBD is most commonly associated with withdrawal from alcohol, benzodiazepines, and barbiturates, as well as with the administration of some psychiatric medications. The tricyclic antidepressants, SSRIs, mirtazapine, cholinergic agents, and monoamine oxidase inhibitors have been associated with increased risk of developing RBD.[2,3,8] Mirtazapine and olanzapine have been reported to be associated with somnambulism, a type of NREM parasomnia.[4,5] However, to the best of our knowledge, there is only one case report of drug-induced POD (by paroxetine, a SSRI) reported in literature, making ours the second of its kind.[9]

In our case, the patient had no previous history of parasomnia or any structural brain lesions. The onset of symptoms after the use of mirtazapine along with known association of the suspected drug with parasomnias made drug-induced POD the most likely aetiology. Also he had improvement of POD symptoms after discontinuing mirtazapine, which strengthened the causative association. Parasomnias are also known to be associated with sleep disordered breathing such as OSA and they improve with CPAP therapy.[10] Our patient also had OSA, but he had improvement of parasomnia only with stoppage of the suspected drug, before the start of CPAP therapy, again favouring the diagnosis of mirtazapine-induced POD. The high periodic leg movement during sleep index in our patient may be due to OSA.

RBD constitutes a major risk factor for neurodegenerative diseases. Eighty percent of idiopathic RBD progresses to develop disorders such as parkinsonism and dementia.[11] So POD also have high likelihood of progression to neurodegenerative disorders. POD is important in that they need to be followed up regularly for the development of neurodegenerative disorders later in life.

This case turned out to be a comedy of errors in form of the management. Our patient had depression and insomnia probably secondary to OSA, which was not properly diagnosed and was treated with antidepressants. Following that he developed drug-induced POD, caused by mirtazapine. With stoppage of the accused drug and change of other antidepressants and management of OSA finally, he and the family members could have a better life free of parasomnia and depression.

REFERENCES

1. Meghna P. Mansukhani, Bhanu Prakash Kolla, Kannan Ramar. American Academy of Sleep Medicine. International classification of sleep disorders. 3rd ed. Darien, IL: American Academy of Sleep Medicine; 2014 Mar; 9(1):1-11.
2. Winkelman JW, James L. Serotonergic antidepressants are associated with REM sleep without atonia. Sleep 2004 Mar 15;27(2):317-321.
3. Onofrj M, Luciano AL, Thomas A, Iacono D,D'Andreamatteo G. Mirtazapine induces REM sleep behavior disorder (RBD) in parkinsonism. Neurology. 2003 Jan 14;60(1):113-115.
4. Yeh YW, Chen CH, Feng HM, Wang SC, Kuo SC, Chen CK. New onset somnambulism associated with different dosage

of mirtazapine: a case report. Clin Neuropharmacol. 2009 Jul 1;32(4):232-233.
5. Faridhosseini F, Zamani A. A Case Report of Somnambulism Associated With Olanzapine. Iranian Journal of Psychiatry and Behavioral Sciences. 2012 Spring Summer;6(1): 72-74.
6. Schenck CH, Boyd JL, Mahowald MW. A parasomnia overlap disorder involving sleepwalking, sleep terrors and REM sleep behavior disorder in 33 polysomnographically confirmed cases. Sleep1997 Nov 20; 20(11): 972–981.
7. Dumitrascu O, Schenck CH, Applebee G, Attarian H. Parasomnia overlap disorder: a distinct pathophysiologic entity or a variant of rapid eye movement sleep behavior disorder? A case series. Sleep Med. 2013 Nov 1; 14(11):1217-1220.
8. Markov D, Jaffe F, Doghramji K. Update on Parasomnias: A Review for Psychiatric Practice. Psychiatry (Edgmont). 2006 Jul;3(7):69-76.
9. Esaki Y, Kitajima T, Fujishiro H, Fujita S, Hirose M, Watanabe A, Iwata N. Parasomnia overlap disorder caused by paroxetine. Sleep Biol. Rhythms. 2017 Jun 21;15(4):327-329.
10. Schenck CH, Mahowald MW. Parasomnias associated with sleep-disordered breathing and its therapy, including sexsomnia as a recently recognized parasomnia Somnologie. 2008 Mar 1;12(1):38-49.
11. Schenck CH, Boeve BF, Mahowald MW. Delayed emergence of a parkinsonian disorder or dementia in 81% of older males initially diagnosed with idiopathic REM sleep behavior disorder (RBD): 16 year update on a previously reported series. Sleep Med. 2013 Aug 1;14(8):744-748.