

**An unusual presentation of visual hallucinations with zolpidem:  
a case report****P. Sai Krishna<sup>1</sup>, Shareef S. Mabu<sup>2\*</sup>**

<sup>1</sup>Department of Psychiatry,  
Prathima Institute of Medical  
Sciences, Karimnagar,  
Telangana, India, <sup>2</sup>Department  
of Pharmacology, Kamineni  
Institute of Medical Sciences,  
Narketpally, Nalgonda,  
Telangana, India

**Received:** 12 January 2015**Revised:** 29 January 2015**Accepted:** 17 February 2015**\*Correspondence to:**

Dr. Shareef S. Mabu,  
Email: drsharifshaik@gmail.  
com

**Copyright:** © the author(s),  
publisher and licensee Medip  
Academy. This is an open-  
access article distributed under  
the terms of the Creative  
Commons Attribution Non-  
Commercial License, which  
permits unrestricted non-  
commercial use, distribution,  
and reproduction in any  
medium, provided the original  
work is properly cited.

**ABSTRACT**

Zolpidem is a hypnotic drug with rapid -onset and short duration of action. It is popularly used for the induction and maintenance of sleep in adults suffering from insomnia. It supersedes benzodiazepines with better tolerability and has fewer side effects such as less residual sedation and the potential for rebound insomnia and dependence is also less. Adverse neuropsychiatric reactions such as visual hallucinations, amnesia, sleepwalking and nocturnal eating are known to occur with zolpidem. Literature suggests higher incidence of visual hallucinations with zolpidem when used along with selective serotonin reuptake inhibitors. Furthermore, visual hallucinations are one of the causes for drug withdrawal. We are reporting a case of zolpidem induced visual hallucinations when used alone and also which disappeared with proper assurance to the patient in subsequent use.

**Keywords:** Zolpidem, Visual hallucination, Drug withdrawal

**INTRODUCTION**

Zolpidem is chemically an imidazopyridine hypnotic drug with rapid-onset and short duration of action. It is an effective drug for the induction and maintenance of sleep in adults. Zolpidem chemically differs with benzodiazepines and is reported to have better tolerability and fewer side effects in relation to residual sedation, amnesia, and the potential for rebound insomnia and dependence is also less. Zolpidem does not have significant anxiolytic, myorelaxant, and anticonvulsant properties.<sup>1</sup>

The use of zolpidem has therefore become increasingly accepted as very safe, and the number of patients prescribed with this medication has increased. Few cases

of zolpidem-induced psychotic phenomenon were reported in other countries and a single case was reported from the Indian subcontinent.<sup>2</sup> Most of the cases reported earlier were observed when zolpidem was used along with selective serotonin reuptake inhibitors (SSRIs) like fluoxetine and paroxetine. We are reporting a case of zolpidem induced visual hallucinations when used alone and also which disappeared after subsequent use.

**CASE REPORT**

A 65-year-old female, married, retired teacher, resident of Nalgonda came voluntarily to Psychiatry outpatient department along with her husband with a complaint of

difficulty in falling asleep from past 6 months. Subject was apparently asymptomatic 6 months back. Her usual sleep pattern was, she goes into bed by 10 pm and into sleep by 30-45 mins and she wakes up by 6 am in the morning. There was no history of any daytime naps.

However, from the past 6 months she had noted a delay in falling asleep. Initially the delay was by 1 hr, but now it has extended by 2-3 hrs. She was getting up from bed by 7 am. She had reported headache and uneasiness after waking up from sleep. She also reported disturbance in her daily routines like cooking food, reading books and painting because of her disturbed sleep. Objective data also confirmed subject's complaints. Further evaluation revealed absence of any co-morbid medical and psychiatric disorders and history of sleep disturbances in the past. She had no habit of smoking, alcohol consumption, and there was no history suggestive of drug abuse. There is no history of psychiatric illness in the family.

She was evaluated by a qualified psychiatrist and an initial diagnosis of sleep onset insomnia was made. She was started on zolpidem 10 mg daily at night time. She was also taught sleep hygiene techniques to improve her sleep.

After 3 days of initiation of treatment, patient had reported transient visual hallucinations. After 1 hr of zolpidem intake, she could see multiple visual images moving in her room like dancing dolls, moving images of gods. These perceptual disturbances were present for 45 mins to 1 hr. Subject was aware that the thing which she had experienced was unreal and had reported to her husband. Her husband could not see any visual images in the room. After 1 hr, she had fallen asleep. She had reported her experience immediately on the next day in psychiatric OPD. She was further evaluated and no abnormality was noted. She had experienced a transient visual hallucination after zolpidem intake. An adverse drug reaction to zolpidem was suspected and an objective causality assessment using Naranjo's scale revealed that the zolpidem-induced visual perception distortion in this patient was probable.<sup>3</sup> She was reassured and advised to continue zolpidem as the episode was transient. She was advised to come after 1-week. Patient is having regular follow-ups from past 2 months, but there were no further episodes of hallucinations.

## DISCUSSION

The incidence of sleep disorders is on a rise with urbanization and changing lifestyle patterns. Sleep onset insomnia is also widely prevalent and short-acting benzodiazepines like Alprazolam was the drug of choice. However, these are superseded by Z compounds like zolpidem, zopiclone, and zaleplon and the number of patients being prescribed with this medication has increased. They have better pharmacokinetic profile and fewer side effects in relation to residual sedation, amnesia, and the

potential for rebound insomnia and dependence is less. They do not have significant anxiolytic, myorelaxant, and anticonvulsant properties.

Zolpidem is a short-acting imidazopyridine hypnotic drug with rapid onset and novel mechanism of action. Zolpidem selectively binds to  $\alpha 1$  subunit of GABA<sub>A</sub> receptors. It potentiates GABA-ergic transmission and inhibits neural excitation.<sup>4</sup> It has a plasma half-life of 2 hrs and approved for bedtime use only. It is metabolized in the liver largely through oxidation and eliminated in the form of inactive products. Zolpidem in contrast to the benzodiazepines has been found to preserve Stage 3 and 4 sleep of NREM sleep. Adverse effects reported with zolpidem include neuropsychiatric reactions such as visual hallucinations, sensory distortion, amnesia, sleepwalking, and nocturnal eating.

Few cases of zolpidem induced visual hallucinations were reported in the western population and a single report was published from Indian subcontinent. These reports suggested transient visual hallucinations (30 mins) when zolpidem was used alone and prolonged (up to 7 hrs) when prescribed along with SSRI. A possible pharmacodynamic interaction was suggested for the prolonged duration of hallucinations in patients who were concurrently on SSRI's.<sup>5</sup>

The case reported in India was prescribed a combination of paroxetine and zolpidem where she experienced hallucinations for a brief period on the 1<sup>st</sup> day. Kito and Koga reported delayed onset of hallucinations after taking the drug for over 1-month.<sup>5</sup> Coleman reported Nystagmus and Gait disturbances along with hallucinations on prolonged use of zolpidem along with Fluoxetine.<sup>6</sup> Tsai et al. have suggested sudden withdrawal and restart of zolpidem may be related to hallucinations. It may be due to alteration in the GABA-A receptor.<sup>7</sup> Huang et al. reported visual perception distortion after a single dose of zolpidem in a 50-year-old Asian woman after she took zolpidem 10 mg for insomnia within 20 mins which lasted for approximately 30 mins.<sup>8</sup>

The exact mechanism by which zolpidem causes visual perception changes is undetermined. Many factors have been correlated with zolpidem-induced visual experiences such as pharmacokinetic factors, gender, age, and hypoalbuminemia. Haas et al. related hallucinations with zolpidem to individual variations in pharmacodynamic sensitivity due to rapid gabaergic activation and viceversa.<sup>9</sup>

## CONCLUSION

Clinicians should be aware of the potential for visual perception distortion, as this is not an uncommon adverse effect and subsides over time. Advantage of z group drugs over benzodiazepines outweighs the rare transient side effects. Reassurance to the subjects will be sufficient than stopping the drug.

*Funding: No funding sources*

*Conflict of interest: None declared*

*Ethical approval: Not required*

## REFERENCES

1. Goodman LS, Gilman A. The Pharmacological Basis of Therapeutics. 12<sup>th</sup> Edition. New York: McGraw Hill; 2012: 467-8.
2. Singh GP, Loona N. Zolpidem-induced hallucinations: a brief case report from the Indian subcontinent. *Indian J Psychol Med.* 2013;35(2):212-3.
3. Naranjo CA, Busto U, Sellers EM, Sandor P, Ruiz I, Roberts EA, et al. A method for estimating the probability of adverse drug reactions. *Clin Pharmacol Ther.* 1981;30(2):239-45.
4. David J, Sanger DJ, Depoortere H. The pharmacology and mechanism of action of zolpidem. *CNS Drug Rev.* 2006;4(4):323-40.
5. Kito S, Koga Y. Visual hallucinations and amnesia associated with zolpidem triggered by fluvoxamine: a possible interaction. *Int Psychogeriatr.* 2006;18(4):749-51.
6. Coleman DE, Ota K. Hallucinations with zolpidem and fluoxetine in an impaired driver. *J Forensic Sci.* 2004;49:392-3.
7. Tsai MJ, Huang YB, Wu PC. A novel clinical pattern of visual hallucination after zolpidem use. *J Toxicol Clin Toxicol.* 2003;41(6):869-72.
8. Huang CL, Chang CJ, Hung CF, Lin HY. Zolpidem-induced distortion in visual perception. *Ann Pharmacother.* 2003;37(5):683-6.
9. de Haas S, Dingemans J, Hoever P, Cohen A, van Gerven J. Pseudohallucinations after zolpidem intake: a case report. *J Clin Psychopharmacol.* 2007;27:728-30.

**doi:** 10.5455/2319-2003.ijbcp20150411

**Cite this article as:** Krishna PS, Mabu SS. An unusual presentation of visual hallucinations with zolpidem: a case report. *Int J Basic Clin Pharmacol* 2015;4:376-8.