

Case Series

Vivid dreams and oscillopsia associated with propranolol – A report of two cases

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ABSTRACT

Propranolol, a beta-adrenergic blocker, is commonly used for migraine prophylaxis and other indications. While its side effects include fatigue, dizziness and sleep disturbances, vivid dreams and oscillopsia are rarely reported. This case report describes two instances of vivid dreams and oscillopsia in patients prescribed propranolol for migraine management. The cases highlight the need for heightened awareness of such adverse effects, especially in long-term therapy.

Keywords: Adverse effects, Migraine prophylaxis, Oscillopsia, Propranolol, Vivid dreams

INTRODUCTION

Propranolol is a non-selective beta-adrenergic receptor antagonist widely used in the management of migraines, essential tremors, myocardial infarction, arrhythmia and hypertension. It is said to be almost as effective as third-generation beta-blockers for arrhythmias.^[1] The use of propranolol as a first-line drug in the prophylaxis of migraine is very commonplace.^[2] Although propranolol is generally well-tolerated and has adverse effects related to sympathetic blockade, such as bradycardia and hypoglycaemic unawareness, central nervous system (CNS) side effects, such as vivid dreams and visual disturbances, are uncommon but clinically significant.^[3] This report highlights two cases of vivid dreams and oscillopsia associated with propranolol use, emphasising the importance of recognising and managing these adverse effects and providing alternative therapies.

CASE SERIES

Case 1

A 34-year-old female with a history of chronic migraine and seronegative spondyloarthropathy was prescribed propranolol 40 mg once daily on May 25, 2024, for migraine prophylaxis. Two nights after initiating the medication, the patient experienced vivid dreams. During the daytime, she reported an illusion of moving objects, described as oscillopsia. Despite these symptoms, she continued propranolol due to persistent migraine attacks. She had previously used a combination of propranolol and amitriptyline for migraine management 2 years ago without similar adverse effects. Her medical and surgical history was otherwise insignificant.

Case 2

A 13-year-old female with a known history of seizure disorder and migraine was prescribed propranolol 40 mg twice daily in combination with sodium valproate 500 mg on February 08, 2024. After 1 week of initiating propranolol, the patient began experiencing vivid dreams, occurring at least three times per week. These symptoms persisted until the date of reporting on July 07, 2024. The patient continued the medication despite the adverse effects, given the ongoing management of migraines. She had no significant medical or surgical history other than the diagnosed conditions.

DISCUSSION

Beta-adrenergic blockers like propranolol cross the blood-brain barrier, potentially causing CNS effects such as vivid dreams, sleep disturbances and hallucinations. The vivid dreams reported by both patients could be attributed to the lipophilic nature of propranolol, facilitating its CNS penetration and interaction with sleep-regulating pathways.^[4,5]

Oscillopsia, characterised by an illusion of moving objects, is an unusual adverse effect. Some of the causes are meningitis, tumours, Meniere's disease, drugs, etc. Some drugs that can cause oscillopsia are gabapentin and clonazepam. It may result from the drug's influence on vestibular function or cortical processing. Interestingly, the first patient experienced oscillopsia within 3 days of starting propranolol, while the second patient did not report visual disturbances, indicating variability in individual susceptibility. Beta-blockers such as propranolol, metoprolol and pindolol can cross the blood-brain barrier due to high lipophilicity, and they probably inhibit central beta adrenergic receptors, 5HT1A and 5HT2 receptors, both of which are thought to decrease alertness, dampen noradrenaline wake-up effect, inhibition of dream suppression and affect visual processing.^[6]

While previous propranolol use without such symptoms in the first case suggests a dose or time-dependent effect, the role of co-administered medications (e.g., sodium valproate in the second case) must be considered. Sodium valproate's CNS effects could have contributed synergistically to the symptoms experienced.

Management and outcomes

Both patients continued propranolol therapy due to its efficacy in migraine management. Counselling was provided about the possible CNS side effects and the importance of monitoring symptom progression. Alternative therapeutic

strategies or dose adjustments were considered but not implemented at the time of reporting.

CONCLUSION

These clinical cases highlight rare CNS adverse effects of propranolol, including vivid dreams and oscillopsia, which clinicians should remain aware of, especially in patients requiring long-term beta-blocker therapy for various conditions. Awareness and timely recognition of these adverse effects can guide appropriate patient counselling, reassurance and therapeutic adjustments.

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Declaration of patient consent: The authors certify that they have obtained all appropriate patient consent forms. In the form, the patients have given their consent for their clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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