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SLEEP MEDICINE PEARLS

A Case of Nocturnal Headache

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A 48-year-old man presented with a 4-month history of nocturnal headaches. The headaches were waking him up from sleep at about 2-hour intervals, occurring two to three times each night. The headaches were always nocturnal, approximately 30 minutes in duration; dull, moderate in intensity; bilateral, in the occipital and temporal regions, without photophobia, phonophobia, or nausea; and sometimes relieved by warm showers. He denied any restlessness, eye redness or excessive tearing, drooping of the eyelid, or nasal congestion. Blood pressure was normal during the headache episodes. Neurologic examination was unremarkable.

He had a history of severe obstructive sleep apnea diagnosed more than 10 years ago, treated with bilevel positive airway pressure (BPAP). He was adherent to BPAP therapy, without residual daytime sleepiness or fatigue. His primary care practitioner prescribed propranolol and topiramate as preventive therapy for possible migraines, without any improvement.

A BPAP device download showed 100% adherence to therapy, 7 to 8 hours usage per night, with residual apnea-hypopnea index of 1.2 events/h. Review of a recent split-night polysomnography revealed no indirect evidence of hypoventilation such as persistent hypoxia. The patient did not have a headache episode during this study. Brain magnetic resonance imaging was unremarkable.

QUESTION: What is the cause of this patient's sleep-related headache?

ANSWER: Hypnic headache

DISCUSSION

Hypnic headache was first described by Raskin in 1988.[1] It is an uncommon primary headache that develops exclusively during sleep and awakens the individual. In many patients, it occurs at the same time each night, earning the name "alarm clock headache." Although the exact mechanism is not known, imaging studies have shown reduction in gray matter volume in the posterior hypothalamus.[2] The International Classification of Headache Disorders, Third Edition (ICHD-3) beta version[3] defines hypnic headaches as:

Recurrent headache attacks, fulfilling the following criteria:
- developing only during sleep, and causing awakening;
- occurring on ≥ 10 days/month for > 3 months;
- lasting from 15 minutes up to 4 hours after waking;
- without cranial autonomic symptoms or restlessness;
- unexplained by another ICHD-3 diagnosis.

Polysomnography data show that hypnic headache may arise from rapid eye movement or non-rapid eye movement sleep.[4] Other primary headache disorders such as migraine, cluster headache, and chronic paroxysmal hemicrania can also be sleep related and must be differentiated from hypnic headaches. Secondary causes of headaches such as brain tumors or hypertension may mimic hypnic headaches; as such, head imaging and blood pressure monitoring have been recommended to rule these out.[5] Caffeine could be used for either prophylaxis or acute pain relief, whereas lithium and indomethacin are used for prophylaxis.[6]

Our patient met all the diagnostic criteria for hypnic headaches. He was started on indomethacin 50 mg twice a day, and the frequency of headaches improved from a nightly occurrence to once a week.

SLEEP MEDICINE PEARLS

1. Hypnic headache is a primary headache disorder that occurs exclusively during sleep.
2. It must be differentiated from other causes of sleep-related headache and brain magnetic resonance imaging can help rule out an underlying structural etiology such as tumors.
3. Medications used to treat hypnic headaches include caffeine, indomethacin, and lithium.

CITATION

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