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The prevalence of hypnic headache in Iceland

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Abstract

Objective: To determine the prevalence of hypnic headache.

Background: The exact prevalence of hypnic headache is unknown since there are no published population-based prevalence studies.

Methods: This study was a pilot for the SAGA cohort study, a population-based study on life stressors and various indices of health. Of 1398 invited adults, 921 (66%) participated; 402 men (average age 45.6 years, SD 13.2) and 519 women (52.6 years, SD 11.1). Subjects answered a headache questionnaire including a screening question for hypnic headache. “Do you have a headache that occurs only during sleep and causes wakening?”. Diagnosis of hypnic headache was made by clinical interview using ICHD-3 criteria.

Results: Among 921 participants, six screened positive for hypnic headache, of those two 0.22% (95% CI 0.06–0.79%) had probable hypnic headache and none had definite hypnic headache.

Conclusion: Confirming that hypnic headache is rare, these data suggest a 0.22% prevalence of probable hypnic headache.

Keywords

Epidemiology; hypnic headache; prevalence; questionnaire; cohort study

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Introduction

Hypnic headache is a primary headache disorder characterized by headache attacks occurring only during sleep and causing wakening. The first cases were described by Raskin in 1988 (1). Since then, more than 340 cases have been reported in the literature (2). Most of the individuals are older than 50 years and hypnic headache has been reported to be more common in women than men by a ratio of 2:1 (2,3). It is generally believed to be an uncommon disorder, but the prevalence is not known since studies on this are lacking (3). Diagnostic criteria for hypnic headache were first proposed in 2004 in the International Classification of Headache Disorders 2nd edition (ICHD-2) (4). The diagnostic criteria were revised in the ICHD-3 (5). The ICHD-3 criteria for hypnic headache require that headache attacks occur only during sleep and awaken individuals at least 10 days per month for more than 3 months. The attacks are required to last between 15 minutes and 4 hours. Cranial autonomic symptoms and restlessness are absent, and no other headache diagnosis can better account for the symptoms. The criteria for probable hypnic headache require attacks strictly occurring during sleep, but one of the other criteria are allowed to be missing (5).

In this study we present the prevalence of hypnic headache in Reykjavik, Iceland. To our knowledge this is the first population-based prevalence study on hypnic headache.

Methods

We used cross-sectional data from the pilot phase of the SAGA cohort study, which is a population-based longitudinal study on the potential influence of trauma and psychological stress on various indices of health, including migraine and headache (6). The pilot study was conducted in February to April 2014 and was approved by the national bioethics committee VSN 14-141-V1.

Women were recruited through a routine cancer screening program offered to all women in Iceland aged 20–69 years; women with pending appointments in Reykjavik capital area were invited to participate. Men were randomly selected (aged 20–69) from the national registry identified by Statistics Iceland as living in the larger Reykjavik area. Of 1398 invited adults, 921 (66%) participated; 519 women (52.6 years, SD 11.1) and 402 men (average age 45.6 years, SD 13.2).

Participants answered an extensive online questionnaire on trauma history, life stressors, psychological morbidities and history of major diseases. The questionnaire included 16 screening questions on headache symptoms (based on ICHD-3 beta criteria) and three questions on headache treatment. One of the headache questions was a screening question for hypnic headache: “Do you have a headache that occurs only during sleep and causes wakening?”

All participants who answered “Yes” to the screening question for hypnic headache were interviewed by a neurologist (JHE), in May and June 2015, to verify or refute a hypnic headache diagnosis based on ICHD-3 criteria. The upper and lower limits of the 95% confidence interval for a proportion was done according to two methods described by Robert Newcombe (7), both derived from a procedure outlined by EB Wilson (8).

Results

A total of six participants (0.7%), all women, answered “yes” to the screening question for hypnic headache. After a clinical interview with a neurologist (JHE) the diagnosis in four of these cases was migraine, two had probable hypnic headache yielding a prevalence of 0.22% (95% CI 0.06–0.79%), but none had definite hypnic headache.

Both cases of probable hypnic headache were women over 50 years old. In both cases, the criterion not fulfilled was the number of attacks (≥10 per month for >3 months) (4,5). Both had bilateral headache attacks of rather short duration (60–90 minutes) waking them from sleep. There were no cranial autonomic symptoms or restlessness. One of them had no other headache disorder. The other one had episodic tension-type headache but the attacks waking her from sleep were distinct. The frequency of attacks for patient 1 was one attack per month and for patient 2 was three attacks per month. Because both cases had less than 10 attacks per month, the attacks did not fulfill the criteria for definite hypnic headache. In other respects, the headache characteristics were typical for hypnic headache.

Discussion

In this study, using ICHD-3 criteria we found no cases of definite hypnic headache and only two cases of probable hypnic headache corresponding to a prevalence of 0.22% in a sample of urban-living individuals in Iceland.

In this study, six participants (0.7%) reported headaches occurring only during sleep and causing wakening. All of them were women. The two participants who had probable hypnic headache were women aged >50 years. The frequency of attacks in both cases was less than 10 per month and therefore the attacks did not fulfill the criteria for definite hypnic headache. In other respects, the headache characteristics were typical for hypnic headache. The criteria for definite hypnic headache are somewhat strict and some authors have, on the basis of their clinical experience, expressed that it should be considered for modification, allowing less than 10 attacks per month (9). Our findings of two cases where this criterion was the only one not fulfilled support this opinion.

None of the participants in this study had definite hypnic headache, confirming that it is a rare disorder. We have not found any previous population-based studies describing the prevalence of hypnic headache or probable hypnic headache. In groups of headache patients evaluated at headache clinics, hypnic headache cases constitute 0.07 to 0.35% of all headache cases (10-13). Only a minority of headache patients are evaluated at headache clinics and the patients attending are a highly selected group. Therefore, it is difficult to draw conclusions regarding population prevalence from such data.

Migraine was the diagnosis in four out of six cases screening positive for hypnic headache. This is no surprise, since migraine is a common disorder and attacks occur frequently during sleep. In a recent study, 39% of migraine participants had sleep-related migraine, defined as more than 75% of attacks occurring during sleep and/or upon awakening (14).

The main strengths of this study are the preplanned screening question for hypnic headache and the verification of the diagnosis by an interview with a neurologist. The main limitation of the study is its small size. Our sample of 921 participants is too small to determine with accuracy the prevalence of hypnic headache. Future studies should include a larger population and possibly consider other research designs. One more potential limitation of this study is that we did not do any investigations to exclude secondary causes of headache such as 24-hour blood pressure measurements or brain scans. Finally, we can't exclude the unlikely possibility of false negatives, meaning that some participants that have hypnic headache answered "no" to the screening question for hypnic headache.

In summary, this study showed that the prevalence of hypnic headache was low, confirming that it is not a common disorder. We found no cases of definite hypnic headache and only two cases of probable hypnic headache, corresponding to a prevalence of 0.22%. It is possible that the frequency criterion for hypnic headache is too strict and a revision may be considered in ICHD-4. Studies with larger sample size and meticulous methodologies are needed to establish the accurate prevalence rate of hypnic headache.

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Key findings

- We found no cases of definite hypnic headache confirming that hypnic headache is a rare disorder.
- Our population-based prevalence estimate for probable hypnic headache is 0.22% (95% CI 0.06–0.79%).
- The ICHD-3 criteria for hypnic headache might be too strict and a revision may be considered in ICHD-4.