Prevalence of Migraine in Patients With a History of Self-reported or Physician-Diagnosed “Sinus” Headache

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Background: Symptoms referable to the sinus area are frequently reported during migraine attacks, but are not recognized in diagnostic criteria. Underrecognition of migraine may be partly attributed to a variable clinical presentation, and migraines with “sinus” symptoms contribute to this problem. This study was conducted to determine the prevalence of migraine-type headache (International Headache Society [IHS]–defined migraine without aura [IHS 1.1], migraine with aura [IHS 1.2], or migrainous disorder [IHS 1.7]) in patients with a history of self-described or physician-diagnosed “sinus” headache.

Methods: During a clinic visit, patients with a history of “sinus” headache, no previous diagnosis of migraine, and no evidence of infection were assigned an IHS headache diagnosis on the basis of headache histories and reported symptoms.

Results: A total of 2991 patients were screened. The majority (88%) of these patients with a history of self-described or physician-diagnosed “sinus” headache were diagnosed at the screening visit as fulfilling IHS migraine criteria (80% of patients) or migrainous criteria (8% of patients). The most common symptoms referable to the sinus area reported by patients at screening were sinus pressure (84%), sinus pain (82%), and nasal congestion (63%).

Conclusions: In this study, 88% of patients with a history of “sinus” headache were determined to have migraine-type headache. In patients with recurrent headaches without fever or purulent discharge, the presence of sinus-area symptoms may be part of the migraine process. Migraine should be included in the differential diagnosis of these patients.

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graine with or without aura experienced unilateral nasal and/or ocular symptoms such as watery eyes, nasal congestion, and runny nose with their headaches. The lack of awareness that sinus and nasal symptoms can be common in migraine may account for the finding that patients with IHS-defined migraine are often diagnosed with “sinus” headache but not with migraine. In the 1999 US population-based American Migraine Study II, 40% of respondents meeting IHS criteria for migraine, or an estimated 11.1 million Americans, reported a physician diagnosis of “sinus” headache with or without additional headache types.3,4 Of those meeting IHS criteria for migraine who were not diagnosed with migraine, 42% were diagnosed with “sinus” headache. Data from a small (n = 47), clinic-based pilot study extend these findings by suggesting that patients with self-described “sinus” headache often meet IHS criteria for migraine but are not diagnosed with migraine.5 Nearly all patients (98%) with self-described “sinus” headache met IHS criteria for migraine-type headache (ie, migraine with or without aura or migrainous disorder).

Results of the latter study suggest that overdiagnosis of “sinus” headache contributes to the underrecognition of migraine; however, the small sample size of the study precludes definitive conclusions about the data. The study described herein was conducted to extend earlier observations by using a large, clinic-based sample to determine the prevalence of IHS-defined migraine without aura (IHS 1.1), migraine with aura (IHS 1.2), and migrainous disorder (IHS 1.7) in patients with a history of self-described or physician-diagnosed “sinus” headache.

**PREVALENCE OF MIGRAINE IN PATIENTS WITH A HISTORY OF “SINUS” HEADACHE**

The number of patients screened for the study was 2991. Most (80%; n = 2396) of these patients with a history of self-described or physician-diagnosed “sinus” headache were assigned IHS 1.1 or 1.2 diagnoses during the clinic visit. Baseline data including characteristics of typical prestudy headaches, mean HIT-6 score, and percentage of patients satisfied with prestudy headache medication were also summarized. The HIT-6, previously shown to be reliable and valid, comprises 6 questions measuring the impact of headaches on functional ability. Total score ranges from 36 to 78. The higher the score, the greater the headache impact. Scores of 60 and above, the highest HIT-6 headache impact category, reflect very severe headache-related impact on functional ability.

All data were summarized by using descriptive statistics. No formal statistical tests were performed.

**RESULTS**

**BASELINE HEADACHE CHARACTERISTICS OF PATIENTS WITH A MIGRAINE DIAGNOSIS**

At screening, patients with IHS 1.1 or 1.2 diagnoses reported a prestudy history of a mean of 3 “sinus” headaches per month. Typical “sinus” headache pain was reported to be moderate or severe by 97% of patients; and mean HIT-6 score was 62.8, a value reflecting very severe headache impact. Most patients with IHS 1.1 or 1.2 diagnoses reported typical migraine characteristics such as worsening of pain with physical activity, nausea, pulsating/throbbing pain, photophobia, and phonophobia. Most patients with IHS 1.1 or 1.2 diagnoses also reported characteristics that are typically associated with “sinus” headache, such as sinus pressure, sinus pain, and nasal congestion.

More than two thirds (67%) of patients with IHS 1.1 or 1.2 diagnoses expressed some degree of dissatisfac-
The results of this primary care clinic-based study involving approximately 3000 patients show that patients with a history of self-described or physician-diagnosed “sinus” headache and no previous diagnosis of migraine commonly met IHS criteria for migraine or migrainous headache. Physicians determined that 80% of patients met IHS criteria for migraine without or with aura, and 8% met IHS criteria for migrainous headache. These findings corroborate the results of an earlier pilot study (n=47) in which 98% of patients with at least a 1-year history of self-described “sinus” headache met IHS criteria for migraine or migrainous headache. Considered together, the data demonstrate that patients and physicians commonly label migraine attacks that have “sinus” features as sinus headache.

Patients’ and health care providers’ failure to recognize migraine may have arisen from the pattern of symptoms these patients experienced. Although most patients who reported typical migraine symptoms such as photophobia and phonophobia, the majority also reported nasal and ocular symptoms. These symptoms are traditionally associated with sinus headache but not migraine. The study did not delineate patients who were self-identified as having “sinus” headache vs those who were physician diagnosed. The failure to recognize typical migraine symptoms in the presence of sinus area symptoms can be patient or physician driven. Lipton et al12 reported that “sinus” headache is one of the most commonly reported terms used by undiagnosed migraineurs to identify their headaches. Diamond13 reported that many migraineurs may receive a “sinus” headache diagnosis instead of or in combination with a migraine diagnosis. Dowson et al14 have also reported in large study evaluating diagnoses by diaries that physicians are more likely to diagnoses migraine when patients self-report a migraine diagnosis and consistently experience the better known features of migraine. Thus, epidemiological studies suggest that confusion of “sinus” headache and migraine may be driven by both patients and physicians.

The tendency to conceptualize nasal and ocular symptoms as being uncharacteristic of migraine may be attributed in part to IHS criteria, which do not list these symptoms as criteria for assigning a migraine diagnosis. The IHS criteria notwithstanding, headache experts describing their clinical experience note the frequent occurrence of nasal and ocular symptoms in migraine.3,15 and their observations have been borne out in clinical studies. For example, in the 47-patient pilot study reported above, 74% of patients with IHS-defined migraine reported stuffiness, and 60% of patients reported runny nose with their headaches.3 Likewise, in a study
of 177 consecutively consulting patients meeting IHS criteria for migraine, 46% reported unilateral nasal or ocular symptoms, including lacrimation, conjunctival injection, and nasal congestion, with their migraine headaches. Also, patients may conceptualize these symptoms as “sinus,” as advertising of over-the-counter sinus medications has repeatedly conveyed that pounding pain associated with these symptoms are “sinus” headache.

In clinical practice, recognizing that patients with episodic headaches predominated by nasal and sinus symptoms actually suffer from migraine is critically important because accurate diagnosis determines the appropriate course of treatment. Particularly for patients whose HIT-6 scores at the screening visit reflected very severe headache impact, migraine-specific therapy is most likely to relieve pain and to restore functional ability. Symptom-targeted therapies such as antihistamines and decongestants may treat the nasal and ocular symptoms but generally are not considered to be therapies that would relieve migraine pain and associated symptoms.

The occurrence of nasal or ocular symptoms in migraine is not surprising given the neurophysiology of the sinuses. The neural innervation of the sinuses comprises trigeminal fibers, which are known to be involved in migraine pathogenesis, as well as parasympathetic and sympathetic fibers, which can be activated by trigeminal stimulation. Migraine-associated alterations in trigeminal and/or autonomic activity may explain nasal and ocular symptoms in migraine. For example, “sinus” symptoms in migraine have been hypothesized to arise from activation of the trigeminal-autonomic reflex, which is mediated by a circuit of trigeminal afferents and parasympathetic efferents that innervate the lacrimal glands and the nasal mucosa.

The results of the present study, while representative of a clinic population sufficiently affected by their headaches to consult doctors for them, may not generalize to the general population composed of consulters and non-consulters with headache. Furthermore, the results may not be wholly representative of headache consulters in that patients with headaches meeting criteria for IHS 11.5.1, or acute sinus headache, were not enrolled in the study. The IHS diagnostic criteria for acute sinus headache, or diagnosis code 11.5.1, include (1) purulent nasal discharge; (2) pathological sinus findings in tests including radiography, computed tomography, or magnetic resonance imaging, and/or transillumination; (3) simultaneous onset of headache and sinusitis; and (4) headache localized to specific facial and cranial areas near the sinuses. All 4 criteria must be present to diagnose sinus headache. Also, in this study, no comparisons can be made between these patients with self-described vs physician-diagnosed “sinus” headache nor to patients with documented “sinus” headache. As allergists and neurologists contend that “sinus” headache is rare even among patients with sinus infection, one must question what is documented “sinus” headache, especially in the absence of infection? These areas require further investigation.

In conclusion, in this study, 88% of patients with a history of self-described or physician-diagnosed “sinus” headache were determined to have migraine-type headache (i.e., IHS-defined 1.1, 1.2, or 1.7 [migrainous] headache). Patients experienced sinus pain, sinus pressure, nasal symptoms, and ocular symptoms as features of migraine. Patients were significantly impacted by their “sinus” headaches, and they were dissatisfied with their prestudy headache medications, none of which was a migraine-specific therapy. The results indicate that the presence of nasal or ocular symptoms often considered to be features of “sinus” headache should not automatically trigger a sinus diagnosis or exclude a diagnosis of migraine but should prompt assessment of the patient for migraine as well as sinus headache. Accurate diagnosis of headache is essential for patients to receive appropriate therapy and to achieve an optimal treatment outcome.

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REFERENCES