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Introduction

Sinus headache is a commonly diagnosed entity referring to pain in the anatomic distribution of the paranasal sinuses. Often self-diagnosed by the patient or diagnosed by the primary care physician, the term sinus headache has increased the otolaryngologist’s role in the treatment of headaches. The dramatic increase in mainstream media advertisements for “sinus headache” medication has emphasized this diagnosis to patients.

The Rhinosinusitis Task Force has defined acute and chronic rhinosinusitis using a combination of symptoms, including the major symptom of facial pain and the minor symptom of headache [1]. The presence of these two symptoms alone is not adequate for the diagnosis of rhinosinusitis. In addition, the frequency of sinonasal parasympathetic symptoms in migraine

Abstract

Background: Multiple studies have shown that “sinus headache” without evidence of sinusitis is frequently migraine. There have been no studies to evaluate treatment of “sinus headache” as migraine in patients with CRS. We sought to determine if patients with concomitant “sinus headaches” and CRS responded to targeted migraine therapy as often as “sinus headache” patients without CRS.

Methods: Chart review from 1998 to 2014 of patients with ICD-9 codes for headache or atypical facial pain at an academic medical center. Targeted treatment of migraine headaches in patients with CRS was evaluated and compared to a matched cohort of patients without CRS.

Results: Of 796 patients reviewed, 67 patients were identified with chronic rhinosinusitis. Of these 67 patients, 29 had appropriate follow-up after Rhinologist-initiated treatment (mean follow-up 10.0 months). 45 control patients had migraine without CRS (mean follow-up 6.6 months). 20 of 29 CRS patients had active sinus symptoms and 9 were stable at first presentation. No difference was found in treatment success between groups: 82.8% in CRS patients and, 82.2% in controls (p=95).

Conclusions: “Sinus headache” (migraine) is commonly encountered in patients with and without CRS, and can be treated with targeted therapy in both groups in an equally efficacious manner. Regardless of whether the patient has active or stable CRS, recognizing the signs and symptoms of migraine headaches followed by appropriate treatment can improve patient quality of life, eliminate a symptom that can cloud further CRS-directed treatment, and avoid unnecessary revision sinus surgery.

Keywords: Sinus headache; Migraine; Headache; Rhinologic headache; Chronic rhinosinusitis

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headache also incorrectly lead to the inappropriate diagnosis of “sinus headache” [2].

With growing exposure to the similarities of their clinical presentations, sinus headaches have become increasingly recognized by otolaryngologists as migraine headaches. Most of these patients do not have classic migraine, but have a less severe variant that is described in the most recent International Headache Society (IHS) classification of migraines as “probable migraine.” [3]. However, those unfamiliar with these criteria often misdiagnose facial pain or headaches in the distribution of the paranasal sinuses as a headache of sinus origin.

Patients with chronic rhinosinusitis often present with a chief complaint of headache. The headache meets the IHS criteria for probable migraine, but first sinus disease must be evaluated. Imaging may or may not demonstrate active disease that can be correlated with facial pain in a corresponding facial region [4] but after appropriate medical and surgical intervention [5] many patients with CRS continue to complain of headaches after the sinus disease has been treated. Furthermore, multiple studies have demonstrated that 48-68% of patients who present with “sinus headache” are eventually diagnosed with migraine headache [6-8]. This raises the question of whether these headaches are truly caused by sinus disease, whether they are concurrent migraine headaches, or whether they are a unique subset of headache.

Classically, headache in patients with CRS has been treated by eliminating the presumed source of the pain-sinus disease. Diagnosis and management of headache should be within a primary otolaryngologist’s armamentarium. However, no data exist on treatment of headache with migraine-targeted therapy in patients with concomitant CRS. We aim to address the treatment effectiveness of migraine-targeted treatment in patients with CRS compared to those without, to elucidate the etiology of headache and to further improve quality of life in patients with CRS.

Methods

A retrospective review of patients who presented to the Division of Rhinology at the Emory University Department of Otolaryngology - Head and Neck Surgery from 1998 to 2014 with a diagnosis of headache or atypical facial pain identified by ICD-9 code was performed. The Institutional Review Board at the Emory University School of Medicine approved this study.

The patients underwent an initial history and physical examination, and were evaluated by faculty rhinologists for sinus disease, including nasal endoscopy and computed tomography (CT) scan. Patient demographic data was collected along with pertinent comorbidities and treatment response to migraine-targeted therapy. The treatment group was established as individuals with chronic rhinosinusitis (based on the Rhinosinusitis Task Force Criteria) who presented with the chief complaint of headache and who met criteria for migraine based on International Headache Society (IHS) guidelines. A control group was then established as patients who presented with and were treated for migraine headaches who did not have chronic rhinosinusitis. Patients in the control group met IHS criteria for migraine headaches and subsequent workup for chronic rhinosinusitis was negative based on the rhinosinusitis task force criteria, computed tomography, and nasal endoscopy.

Efficacy of treatment of migraine headaches initiated by the otolaryngologist was determined in subsequent follow-up appointments. Treatment success was considered to be headache resolution after treatment with abortive medications, specifically Relpax (Pfizer, New York, NY), a second generation triptan. If headaches persisted after abortive treatment, this was considered a failure.

Results

Of the 796 patients who were identified with CPT codes for headache or facial pain, 458 (57.5%) were diagnosed with migraine headaches based on IHS criteria. Of those diagnosed with migraine headache, 67 had concurrent chronic rhinosinusitis based on established criteria described above. After otolaryngologist-initiated therapy with migraine-targeted therapy, 29 of the 67 CRS patients had adequate documented follow-up with reassessment of headache symptoms.

The CRS group included 13 males and 16 females, with a mean age of 49.1 years (range 18-81 years). These patients were started on migraine-targeted therapy, mostly oral triptans. Mean follow-up for otolaryngology-treated patients with CRS was 10.4 months. The control group included 22 males and 23 females with a mean age of 48.9 years (range 32-72 years). Mean follow-up for the control group was 6.6 months.

In the CRS group, 24 of 29 (82.8%) patients had resolution of headache after use of abortive oral medication. In the control group, 37 of 45 (82.2%) patients had resolution of headache after use of abortive oral medication. There was no significant difference in treatment success of migraine headaches in patients with CRS compared to those without (p=95).

Discussion

Treatment of sinus headaches can be complex and requires identification or exclusion of sinus pathology. Facial pain or headache is one of the most commonly noted symptoms in CRS and one of the major criteria for diagnosis. In addition [1], headache or facial pain is significantly improved after functional endoscopic sinus surgery when the symptom is truly related to sinuses [9,10]. However, when headache persists, and sinus disease is ruled out by endoscopy or through imaging, further investigation and medical management is necessary [11].

In patients where headache persists, migraine headache should be considered highly. In these patients, it is likely that migraine headache and CRS were coexistent. In patients with concomitant CRS and migraine headaches, identifying specific headache characteristics through a targeted history can help differentiate a migraine headache from a CRS induced headache. For example, the location of sinus disease in relation to the location of headache or the fluctuation of headache and recurrent episodes
in the setting of stable CRS. In these patients, migraine should be highly considered and migraine-targeted therapy should be started. Response to migraine-targeted therapy can be diagnostic and can confirm concomitant migraine headache.

Multiple previous reports have demonstrated a positive response to empiric medical therapy for “sinus headaches” or migraines. Three studies, including one randomized controlled trial, demonstrated a positive response to triptan therapy, with statistically significant improvement in 69-82% of patients [12-14]. In our cohort, otolaryngology-initiated treatment consisted primarily of triptans as first-line therapy. Our response to migraine-targeted therapy in patients with CRS was 82.8%, equal to that of patients without CRS. Our rate of treatment success in both cohorts corroborates previous reports of sinus headache treatment with migraine-targeted therapy. Furthermore, it demonstrates the utility of migraine-targeted therapy for headaches in patients with a history of CRS. After sinus pathology has been addressed or excluded, prompt treatment of headaches should begin.

Patients with CRS comprise the majority of a rhinologist’s practice, and often a large part of a general otolaryngologist’s practice. Treating headache in patients with CRS similarly to a patient without CRS, when sinus disease has been appropriately controlled, may improve quality of life much more quickly [15]. In addition, it may alleviate a symptom that often clouds judgment when considering recurrence of sinus disease in patients with CRS. Controlling migraine headache in patients with CRS may decrease the number of imaging studies performed in an effort to find a nidus of sinus disease that may explain the headache, saving the patients and the healthcare system significant costs.

Limitations of our study include a small CRS cohort, as many patients with CRS who were treated with migraine-targeted therapy did not follow-up and thus treatment efficacy could not be documented. In addition, this may have led to underreporting of symptoms in our cohort. Some patients likely did not follow-up due to improvement of symptoms, but some patients may have not improved and sought care elsewhere. These factors have reduced the total number of patients with adequate follow-up, especially in the CRS group.

Conclusion

Headache is commonly attributed to chronic rhinosinusitis, but in many instances is migraine headache. In patients with CRS and headache, treatment with migraine-targeted therapy can improve headache symptoms at a rate greater than 80%, to a similar degree to that seen in patients without sinus disease. Specific characteristics of the headache, or lack of corresponding sinus disease in the location of the headache, may hint at a diagnosis of concomitant migraine headache in the setting of sinus disease. In the event that sinus disease is present, it should be further evaluated and treated. Migraine headache should be concomitantly managed with migraine-targeted therapy. In this subset of patients, the otolaryngologist is in a position to diagnose and treat migraine headaches, improving quality of life without delay, as well as eliminating a confounding factor in treatment of the patient’s sinus disease.
References