ORIGINAL ARTICLES

Psychiatric distress amplifies symptoms after surgery for chronic rhinosinusitis

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BACKGROUND: **Psychiatric disorders are associated with increased symptom burden when combined with chronic medical conditions. However, there are no reports of how psychiatric distress influences outcomes with surgical treatment for chronic rhinosinusitis (CRS). We hypothesized that subjects with psychiatric distress (somatization, anxiety, and depression) would report more severe long-term sinus symptoms and worse quality of life (QOL) than subjects without psychiatric distress.**

METHODS: **This is a community-based, prospective, observational cohort study of patients diagnosed with CRS presenting for surgery. Patients were interviewed before surgery; CT scans were reviewed, and questionnaires were completed about sinusitis-related symptoms (SNOT-16), general health status and QOL (SF-36), and psychiatric distress (BSI and PHQ). Outcomes were also assessed 1, 3, 6, and 12 months postoperatively.**

RESULTS: **Ninety-five patients had complete records for analysis. Psychiatric distress was prevalent, with 31% screening positive for somatization, 17% positive for anxiety, and 25% positive for depressive disorders. Subjects with somatization had significantly worse SNOT-16 scores at each time point compared with those without somatization ($P < 0.05$). Subjects with depression reported more severe symptoms at 6 and 12 months after surgery than those without depression ($P < 0.05$). The presence of somatization preoperatively was also independently associated with worse symptom severity 12-months after surgery, even after adjusting for prior sinus surgery, CT stage, Charlson Index, and deviated septum. In addition, subjects with psychiatric distress reported significantly worse SF-36 physical and mental component summary scores 12-months after surgery than subjects without psychiatric distress.**

CONCLUSIONS: **Psychiatric distress is associated with worse reported sinus symptoms and lower QOL throughout surgical management of chronic rhinosinusitis. Despite this, subjects with psychiatric distress report a similar degree of improvement in sinus symptoms after surgery compared with those without distress.**

CLINICAL SIGNIFICANCE: **Psychiatric distress should be considered in patients with persistent symptoms after surgery. Psychiatric distress should also be considered in efforts to design a chronic sinusitis staging system.** (Otolaryngol Head Neck Surg 2005;132:189-96.)

Chronic rhinosinusitis (CRS) is the most prevalent self-reported chronic condition in the United States, affecting over 141.3 per 1000 persons or roughly 35 million Americans.[1] Unlike acute sinusitis, CRS is significantly more difficult to define and treat. The 1997 definition of CRS from the American Academy of Otolaryngology–Head and Neck Surgery Rhinosinusitis Task Force is based primarily on a patient's sub-

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Preliminary analyses of these data were presented as an oral presentation during the Annual Meeting of the American Academy of Otolaryngology–Head and Neck Surgery in September 2002, San Diego, California. The final paper was presented as an oral presentation at the Annual Meeting of the American Academy of Otolaryngology–Head and Neck Surgery in September 2004, New York, NY.

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jective complaints.[2] The major complaints tend to be sinus-specific and include nasal congestion and discharge, facial pain or pressure, or olfactory disturbance. However, some of the minor symptoms, such as fatigue and headache, may not be attributed solely to sinus pathology. These nonspecific symptoms are also commonly found in numerous other chronic conditions.

Psychiatric distress, including somatization, anxiety, and depression, are reported to be associated with increased symptom burden and functional impairment in several chronic medical conditions.[3-5] For instance, patients with depression and diabetes have been found to have a significant increase in diabetic symptom burden and functional impairment compared with patients with diabetes alone after controlling for a number of diabetic complications, medical comorbidity and hemoglobin A1c.[6] However, there are no reports of whether psychiatric distress influences clinical outcomes after surgical treatment for CRS.

Our primary objective was to describe the impact of psychiatric distress on sinus symptom severity and global quality of life (QOL) throughout surgical management for CRS. We hypothesized that subjects with psychiatric distress, including somatization, anxiety, and depressive disorders, would report worse long-term sinus symptom severity and worse QOL than subjects without psychiatric distress. A secondary objective was to identify baseline patient characteristics associated with sinus symptom severity and QOL after surgical treatment.

METHODS

Cohort Assembly

This prospective observational cohort study evaluated clinical outcomes after endoscopic sinus surgery for CRS. This study was approved by the University of Washington Institutional Review Board for Human Subjects Research (#00-4005-02). Subject recruitment occurred between August 2001 through May 2002 from 11 community-based and 3 academic-based otolaryngology practices in the greater Seattle region. Eligibility requirements included: (1) diagnosis of CRS according to the 1997 definition set forth by the American Academy of Otolaryngology–Head and Neck Surgery Rhinosinusitis Task Force[2]; (2) scheduled for and awaiting functional endoscopic sinus surgery; (3) ability to speak and read English; and (4) at least 18 years of age. A history of sinus surgery did not exclude subjects from the study.

Data Collection

After informed consent was obtained, subjects were interviewed by telephone preoperatively. Data collected included patient demographics, sinusitis-specific comorbidities, and Charlson comorbidity.[7] Subjects were then sent and asked to complete a preoperative enrollment packet that included a sinusitis-specific symptom severity measure (the Sino Nasal Outcome Test-16 [SNOT-16][8]), a global QOL instrument (the MOS SF-36)[9], a screening measure for major depression and depressive syndromes (the Patient Health Questionnaire [PHQ-9][10]), and a screening measure for somatization and anxiety (the Brief Symptom Inventory [BSI][11]). In addition, one of us (GD) performed a review of the medical records and the patient's preoperative sinus computed tomographic (CT) scan. The medical record review focused on documenting prior sinus surgeries and findings from the paranasal physical examination, including endoscopy. The CT images were scored with both the modified Lund-MacKay CT staging system recommended for use in outcome studies by the American Academy of Otolaryngology–Head and Neck Surgery Rhinosinusitis Task Force[12] and by the Harvard sinus CT staging system.[13] A second author (BY) independently reviewed a 30% convenience sample of the CT scans. A weighted Kappa was calculated for interreviewer correlation.

Enrolled subjects were then sent self-administered questionnaires at 1, 3, 6, and 12 months postoperatively. These packets included the SNOT-16 and SF-36. The BSI and PHQ were also included in the final 12-month follow-up packet to measure psychological distress. Subjects received $10 remuneration for completion of each questionnaire packet.

Sinus-specific symptom severity (SNOT-16). The SNOT-16 is a validated 16-item instrument designed for longitudinal measurement of chronic rhinosinusitis-specific symptoms.[8] Items are scored on a 4-point scale, and the composite score is calculated as the mean of the answered responses. A maximum value of 3 signifies the most severe symptoms, and a score of 0 signifies no symptoms.

Global quality of life (SF-36). The SF-36 is a commonly used global QOL measure. There are 36 items that are categorized into 8 subscales. These subscales are summarized by the physical (PCS) and mental component summary scales (MCS). The PCS reflects physical morbidity and etiology, whereas the MCS reflects psychological or mental morbidity and etiology.[14] The PCS and MCS are derived such that a score of 50 (from 0-100) is indicative of the norm for the general U.S. adult population. Scores less than 50 represent functional impairment.

Measure of somatization and anxiety (BSI). The BSI is a validated 53-item self-report questionnaire about psychological and physical symptoms.[11] The questions are divided into 9 categories of psychopathology. Patients in this study were adminis-