Braz J Otorhinolaryngol.
2013;79(3):306-11.

DOI: 10.5935/1808-8694.20130055

ORIGINAL ARTICLE

BJORL.org

Long-term outcomes of endoscopic sinus surgery for chronic rhinosinusitis with and without nasal polyps

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Keywords:
nasal polyps;
natural orifice endoscopic surgery;
quality of life;
sinusitis;
treatment outcome.

Abstract

Chronic rhinosinusitis (CRS) significantly affects patient quality of life. Medical and surgical treatments aim to clinically manage the condition.

Objective: To assess the long-term quality of life and clinical management of CRS in patients submitted to endoscopic sinus surgery.

Method: This prospective cross-sectional cohort study enrolled 38 patients and looked into the follow-up data of subjects diagnosed with CRS before surgery, three months after surgery, and at least two years after surgery. The Sinonasal Outcome Test 22 (SNOT-22) was used to assess response to treatment and long-term clinical management of the disease.

Results: Significant improvements in the SNOT-22 scores were seen between the preoperative (61.3) and postoperative assessments with three (16.9) and 24 (32.3) months. No statistically significant differences were seen when patients with polyps were compared to polyp-free subjects. Few patients were controlled in both groups, and 7.89% of the subjects had revision surgery during the study.

Conclusion: Endoscopic sinus surgery significantly improved the quality of life of patients with chronic rhinosinusitis. Clinical control of the condition was acceptable, with few patients requiring re-operation within two years of the first surgery.

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Paper submitted to the BJORL-SGP (Publishing Management System - Brazilian Journal of Otorhinolaryngology) on November 6, 2012;
and accepted on January 28, 2013. cod. 10558.

INTRODUCTION

Chronic rhinosinusitis (CRS) significantly affects the quality of life of patients. Cases of CRS may or not be associated with nasal polyps. CRS treatment aims to attain clinical control of the disease, which is defined as the elimination or mitigation of patient symptoms to a point where subjects are no longer bothered by the disease, possibly in combination with a healthy or quasi healthy mucosa requiring only the administration of topical medication[1].

The severity of symptoms and the impact of the disease upon patient quality of life can be assessed through the Sinonasal Outcome Test 22 (SNOT-22)[2-4]. This validated tool encompasses all major symptoms included in the diagnosis criteria set in the European Position Paper on Rhinosinusitis and Nasal Polyps (EPOS) 2012 for CRS[1]. The SNOT-22 is a repeatable tool and the graphic representation of test results allows for easy visualization of the outcomes of conservative and surgical approaches, as well as exacerbations observed during follow-up[2-4]. Morley & Sharp[5] compared 15 sinonasal questionnaires and concluded that the SNOT-22 is the most adequate tool to analyze patients with CRS, including subjects submitted to functional endoscopic sinus surgery. The SNOT-22 was recommended by the EPOS 2012 as the tool to assess patients with CRS[1].

This chronic illness is correlated with partially explained complex inflammatory mechanisms and host-environment interactions, which together explain the ineffectiveness of medical and surgical therapies in curing patients[1]. Some authors have looked into quality of life and long-term clinical management of the disease[6-12], but few were able to show improvements in quality-of-life test scores[7,8,10]. This study aimed to assess quality of life and long-term clinical management of CRS of patients submitted to endoscopic sinus surgery.

METHOD

This prospective longitudinal cohort study included chronic rhinosinusitis patients followed up for at least two years after endoscopic sinus surgery. The individuals included in the study were recruited from the institution's clinic. They were 18 and older and had been diagnosed with chronic rhinosinusitis with nasal polyps (CRSwNP) or without nasal polyps (CRSsNP) based on the EPOS 2012 criteria, with indication for surgery. The study was approved by the Research Ethics Committee and granted permit 1135/09. Participants signed an informed consent term.

Patients were asked to answer the SNOT-22 questionnaire before surgery (Preop) and three months after surgery (PO3m). In the review patients followed up for two years and longer were included (POT). Subjects were given a thorough questionnaire that included the SNOT-22, an assessment of the clinical management of the disease, and reports of revision procedures they were submitted to within the timeframe of the study. The chart proposed in the EPOS 2012[1] was used to assess the clinical management of CRS (Figure 1).

ASSESSING THE CLINICAL CONTROL OF POLYPS AND CHRONIC RHINOSINUSITIS			
CHARACTERISTIC	CONTROLLED (all of the following)	PARTIALLY CONTROLLED (at least one present)	OUT OF CONTROL (three or more)
Nasal obstruction	Absent or it does not bother	Present most days of the week	Present most days of the week
Anterior or posterior purulent rhinorrhea	Somewhat mucoid	Mucopurulent most days of the week	Mucopurulent most days of the week
Facialgia Headache	Absent or it does not bother	Present	Present
Olfaction	Normal or not much altered	Compromised	Compromised
Sleep disorder or fatigue	Not compromised	Compromised	Compromised
Nasal endoscopy (if available)	Healthy or almost healthy mucosa	Diseased mucosa (polyp, pus, inflammation)	Diseased mucosa (polyp, pus, inflammation)
Systemic medication needed to control the disease	Not necessary	Need of 1 course of oral steroids or antibiotics in the past 3 months	Need for long term oral steroids or antibiotics in the last month

Figure 1. Assessment of chronic rhinosinusitis and nasal polyp medical management. Adapted from EPOS 2012.

The Chi-square test (Fisher's exact test or Freeman-Halton extension of Fisher's exact test when needed) was used to analyze the distribution of genders in the CRSwNP and CRSsNP groups. The mean ages of the CRSwNP and CRSsNP groups were compared through the unpaired *t*-test. The mean scores in Preop, PO3m and POT of each group were compared using the paired t-test. The mean scores of the CRSwNP and CRSsNP groups in each of the follow-up phases (Preop, PO3m, POT) were compared through the unpaired *t*-test. The distributions of disease management and management characteristics for each group were compared through the Chi-square test (Fisher's exact test or Freeman-Halton extension of Fisher's exact test when needed). Statistical significance was attributed when $p < 0.05$.

RESULTS

Sixty patients in preoperative care for endoscopic sinus surgery diagnosed with CRSwNP or CRSsNP were enrolled in the study. After signing informed consent terms, they answered the SNOT-22 questionnaire before surgery and three months after surgery. Thirty-eight of the 60 original patients were found two years after surgery and were included in the second part of the study. Patient characteristics are described on Table 1.

Patients followed up for at least 24 months after surgery were included. There were no statistically significant differences between the CRSwNP and CRSsNP groups in the different follow-up phases (unpaired *t*-test: $p = 0.72$). Mean time after surgery in the late follow-up of CRSwNP subjects was 29.29 months, with a standard deviation of 2.34 months, against 28.95 months and a standard deviation of 3.54 months in the CRSsNP group. The entire sample considered together had a mean POT (late follow-up) of 29.11 months and a standard deviation of 3.03 months. The distribution of POT times can be seen in Figure 2.