IMPROVEMENT OF QUALITY OF LIFE AFTER ENDOSCOPIC SINUS SURGERY FOR CHRONIC RHINO-SINUSITIS

Muaid Ismaiel Aziz *

Submitted: 27/4/2014; Accepted: 16/8/2014; Published: 1/6/2015

ABSTRACT

Background

Chronic Rhinosinusitis has a great impact on patient`s life quality because of its associated symptoms,were endoscopic sinus surgery widely used as treatment for it , so assessment of symptomatic outcome of this type of surgery on quality of life will be of value for otorhinolaryngology surgeons and for the patient.

Objectives

To assess the effect of endoscopic sinus surgery in improving symptoms and health aspect of quality of life for patients with chronic rhinosinusitis depending on the patient`s satisfaction.

Patients and methods

This prospective study conducted on 60 patients suffering from chronic rhinosinusitis, with male predominance (33 Males: 27 Females), were underwent endoscopic sinus surgery. Sino-Nasal Assessment Questionnaire used for data collection preoperatively and six months postoperatively. Data analyzed statistically and compared.

Results

There was highly significant association between the preoperative and postoperative scores($p < 0.001$), no association found for the outcome with the age($p > 0.05$) or sex($p > 0.05$), nasal obstruction was the most relieved symptom and cough was the least.

Conclusion

Endoscopic sinus surgery done for patients with chronic rhinosinusitishas a positive effect on disease-specific Quality Of Life after six months follow-up.

Keywords: *Rhino-sinusitis, Nasal obstruction, Endoscopic sinus surgery*

* Department of Surgery, School of Medicine, Faculty of Medical Sciences, University of Sulaimani.
Correspondence: muaident@gmail.com

https://doi.org/10.17656/jsmc.10064

INTRODUCTION

Rhinosinusitis has been defined as a group of disorders characterized by inflammation of the mucosa of the nose and paranasalsinuses[1]. Besides intranasal anatomic changes such as septal deviation and septalspurs, avariety of other diseases of a chronic inflammatory, allergic, traumatic or neoplastic nature can lead to chronic rhino-sinusitis.

Conservative treatments options for chronic rhinosinusitis are of symptomatic benefit and cannot eliminate the cause of chronic sinusitis. The only definitive treatment is sinus surgery [2]. The low degree of morbidity associated with endoscopic sinus surgery and excellent reported subjective results have made this type of surgery the best approach to chronic inflammatory sinus disease that fails medical management.[3]. External approaches are indicated in certain unique situations and also may be utilized in patients for whom multiple endoscopic procedures failed [1] concept of functional endoscopic sinus surgery is to surgically remove inflamed tissue from critical points in the mucociliary clearance pathways.

When we consider the quality of life impact from the rhinosinusitis-related symptoms and the associated emotional and functional impairments, it can be assumed that rhinosinusitis has a dramatic impact on patients lives. This, in turn, will affect their overall sense of well-being, which can ultimately affect work productivity and life satisfaction. It is possible that the direct costs of rhinosinusitis are less than the indirect costs related to reduced productivity in the workforce[4].

Success of treatment can be measured using survival, costs, and physiologic measures, but frequently health-related Quality Of Life (QOL) is a primary consideration. The ability to assess outcomes in chronic rhinosinusitis has dramatically improved with the development of disease-specific scales [5].

Since the nineteen-eighties quality of life (QOL) instruments were systematically developed and validated for use in clinical medicine to achieve the goal of measuring the subjective outcome of the patients. The first instruments for use in patients with CRS were developed in the nineteen nineties [6].

There are many validated instruments to assess the impact of nasal/sinus complaints upon QOL, like Sino-Nasal Outcome Test (SNOT 20) with 20 questions, RSOM-31 (Rhinosinusitis outcome measure) contains 31 questions divided into seven subsets; however, the scale onto which the answers have been placed make it somewhat hard to answer [7]. The RSDI (Rhinosinusitis Disability Index) relates nasal/sinus symptoms to specific limitations placed upon daily life activities through 30 questions in a similar fashion to the RSOM [6].

It is of great importance for the ENT surgeons to be able to demonstrate and evaluate the clinical effectiveness of ESS. For that purpose a lot of "outcome measures" are used: Visual Analogue Score (VAS), Sino Nasal outcome Test (SNOT-20), Sino Nasal Assessment Questionnaire (SNAQ-11) [7].

It appears that the Sino Nasal outcome Test "SNOT-20" has become the gold standard outcome measure for sinonasal surgery. It was selected as the outcome tool in the National Comparative Audit of Surgery for rhinosinusitis in the UK2000/2001. Its believed that there are some significant shortcomings in the SNOT-20. For example, it contains no reference to nasal obstruction, altered sense of smell or headache. The first two are considered cardinal symptoms in the rhinological history. These inadequacies were highlighted in a departmental audit, which confirmed that patients ranked nasal obstruction, congestion and facial pain most highly and were the commonest presenting symptoms.

Therefore the Sino Nasal Assessment Questionnaire, developed, an eleven-point assessment, (SNAQ-11) as an outcome tool. The SNAQ-11 is a valid and clinically relevant tool for assessment of patients with Sino-nasal disease. The specificity and predictive value of SNAQ-11 can play a valuable role in not only in measurement of outcome but also in patient selection for different treatment modalities [8].

The aim of this study was to assess the effect of endoscopic sinus surgery in improving symptoms and health aspect of quality of life of patients complaining from chronic rhinosinusitis and explore the main symptoms relieved by this type of surgery depending on the patient`s satisfaction.

PATIENTS AND METHODS

This prospective study carried out in Otorhino-laryngology- Head and Neck surgery center in Sulaimaniya from June 2012 to July 2013. It conducted on 60 patients with clinical presentation and CT-Scan changes of chronic rhinosiusitis not responding to medical treatment and they were prepared for

endoscopic sinus surgery, their age ranged between 13 and 56 years ,distributed in age groups of 10 years interval, the peak age group presented was (31-40 y) followed by the group (21-30 y), with average age of 33.6 years. 33 of them are males and 27 are females. Revision ESS and malignant cases are excluded from the study. The extent of the surgical procedure was according to the clinical, radiological and operative findings and it includes suncinectomy, middle meatalantrastomy, anterior and posterior ethmoidectomy and opening of sphenoid sinuses. Then clearing the base of skull till reaching frontal recess, frontal sinuses and clearing of the disease from it. Post-operatively regular nasal debridement was done weekly for six subsequent weeks.

History of symptoms taken by using a questionnaire contained 11 questions covering most of the symptoms of sino-nasal diseases (Sino-Nasal Assessment Questionnaire 11 - SNAQ 11). Each patient requested to fill the questionnaire on two occasions, preoperatively and six months after the operation. The severity of the symptoms evaluated by a score ranging from (0- 5), then the variability statistically analyzed. The sum of the numeric scores of all questions in pre and post-operative forms collected for comparison and a percentage of change in score obtained.

Data entry and analysis

Each returned questionnaire was given an identity number (ID). Prior to data entry and analysis, the questions of study were coded. The data was entered into a Microsoft Excel Spreadsheet, after data cleaning; the data was transported into SPSS (Statistical Package for the Social Sciences-version 21.0) package software program for statistical analysis. Descriptive statistics (numbers, percentages, means and standard deviations) were calculated for all variables, as well as analytical statistics was done to find the relations between variables by using the appropriate statistical tests such as T-test, and F- test (analysis of variance), p-value < 0.05 was considered as significant.

RESULTS

In this study as new classification of CRS is CRS with polyposis and CRS without polyposis, so we have selected 60 patients of chronic rhinosinusitis were 43 (71.6%) with polyposis and 17 (28.4%) patients without polyposis. 55% of them male and 45% female. Most common group aged 31-40 years (33.3%) followed by age range group 21-30 (26.7%), with average age of 33.6 years. The main preoperative complaint of our patients was nasal obstruction (for all 60 patients), anterior nasal discharge (57) patients, then facial pain and the least complaint was posterior nasal discharge and the largest change in SNAQ score obtained was for nasal obstruction followed by that for facial pain and, the least was with cough score as shown below in table 1.

The results also shows non-significant association between age, sex distribution and change in score as (p value >0.05) as shown below in table 2 and 3.

Table 3 explores that the mean SNAQ score pre-operatively was 34,2, while post-operatively was 9,8 . This association was highly significant statistically (p value <0.001).

Table 1. Patients and SNAQ score.

Symptoms	Number of patients			SNAQ score				
	Pre-op.	Post-op.	Change	Pre-op.	Post-op.	Change	Mean	Percent
Nasal obstruction	60	23	37	678	132	546	9.1/15	60.6%
Nasal fullness	53	22	31	366	108	258	4.3/15	28.6%
Facial pain	56	16	40	304	50	254	4.23/10	42.3%
Anterior nasal discharge	57	36	21	142	54	88	1.46/5	29.2%
Posterior nasal discharge	11	5	6	22	6	16	0.26/5	5.2%
Sneezing	47	43	4	76	60	16	0.26/5	5.2%
Cough	13	10	3	20	13	7	0.11/5	2.2%
Diminished smell	49	29	20	144	68	76	1.26/5	25.2%
Headache	56	33	23	120	68	52	0.86/5	17.2%
Ear pain, pressure	14	7	7	31	15	16	0.26/5	5.2%
Sleep disturbance	40	7	33	102	13	89	1.48/5	29.6%

Table. 2 Association between SNAQ score change and age group distribution.

Age groups (Years)	Change in score			Percentage of change		
	Mean	Std. Deviation	P value	Mean	Std. Deviation	P value
< 20	23.43	8.22		29.29	10.27	
21-30	21.38	12.64		26.70	15.82	
31-40	25.50	8.07	0.595	31.88	10.09	0.592
41-50	27.22	8.40		34.03	10.51	
> 50	26.25	10.67		32.84	13.33	

Table. 3 Association between SNAQ score change and gender.

Gender	Change in score			Percentage of change		
	Mean	Std. Deviation	P value	Mean	Std. Deviation	P value
Male	24.82	7.752	0.795	31.03	9.689	0.791
Female	24.15	12.012		30.18	15.027	

Table 4. Association between SNAQ score change and operative status.

Operative status	SNAQ scores		P value
	Mean	Std. Deviation	
Pre-operation	34.20	7.394	<0.001
Post-operation	9.85	7.837	

DISCUSSION

The outcome measure used in this study (SNAQ11) covers most of the symptoms of sinonasal diseases, differing from the commonly used SNOT20 measure as the latter contains no reference for nasal obstruction or headache that are common sinonasal symptoms. This advantage of (SNAQ11) in comparison with (SNOT20) covered by a study done in UK in 2002 [8].

The results for long-term improvement of nasal and sinus symptoms are excellent. In one study, 98.4% of patients reported overall improvement. However, when patients are asked to rank the degree of relief of specific symptoms, marked variation is found from symptom to symptom.

All of our 60 patient (100%) in the present study had nasal obstruction, nasal discharge was the complaint of 57 patients (95%), while 56 patients (93.3%) had facial pain and headache, and 49 of them (88.6%) complaint of diminished smell. This symptomatic distribution differs from that of Damm M [9] who illustrated; 92% nasal obstruction, 87% nasal discharge, 64% headache, 68% diminished smell. This difference is probably due to environmental and social variations between the two communities as our patient presented with less complain from nasal discharge and more complain deom headache than Damm M study .

In our study the greater reduction in SNAQ score was in nasal obstruction(-182) and facial pain(-128) and this is a suspected outcome of ESS, as one of the aims in this type of surgery is to relieve the obstructed osteomeatal area and removal of hypertrophied mucosa resulting in better ventilation and drainage for the diseased cavities.

The lesser change was in cough (-7), and sneezing (-16), as these symptoms are more related to allergy than mechanical obstruction, and suspected to respond better to medical treatment later on, especially after the surgical clearance of the obstructed regions in the nasal cavity permitting better environment for local medications to reach previously unreachable mucosa. This is compatible with a study done by Alexander C. Chester [10] which found that the greatest reduction was in nasal obstruction and facial pain, but the lesser change in hyposmia. F.F. Fahmy [8] also found a higher change in nasal obstruction and facial pain scores, with lower change in cough and ear symptoms.

As clinical experience suggests, and our results confirm, endoscopic sinus surgery seems especially effective at addressing nasal obstruction, anterior nasal discharge. A statistically significant reduction was seen between the scores obtained pre and postoperatively on (SNAQ11) 34.20 vs. 9.85 (p value <0.001). Similar significant reduction obtained by: Michael Damm [9], Pinto B., Thiago F [11], and Smith TL [12].

Numerous reports as mentioned below have shown good results of endoscopic sinus surgery for chronic rhinosinusitis. Short-term symptomatic improvement appears to be independent of both the extent of preoperative disease and the presence or absence of persistent disease within the cavity. However, the extent of disease at preoperative CT staging is predictive of the objective resolution of disease with surgical intervention and also has serious implications for long-term disease recurrence.

In a study by Kennedy [1, 3], more than 75% of patients without polyps had normal-appearing endoscopic cavities after a mean follow-up period of 18 months. However, only 23.5% of the cavities with diffuse sinonasal polyposis were normal. A follow-up study involving 72 patients from the original study group observed for an average of 7.8 years after surgery showed that none of the patients with cavities that returned to normal needed revision surgery.

Most of the patients (58) in the present study had marked improvement in symptoms, one patient (1.6%) showed no change in his symptoms and only one patient (1.6%) suffered from worsening of some symptoms specially headache and sneezing despite the improvement of other symptoms like nasal obstruction and this can be due to other causes of these deteriorated symptoms. So it is clear to us that sinonasal diseases that treated by endoscopic sinus surgery get good improvement in the symptom score even in most difficult and complicated cases as this study included chronic rhinosinusitis with polyposis. Michael Damm and GeroQuante in there study illustrated that (12%) of the patients had no change and (3%) deteriorated [9].

There appears to be no doubt that meticulous surgical technique aimed at mucosal preservation and removal of all bony partitions in the areas of disease and careful postoperative management can substantially affect nasal and sinus symptoms and quality of life.

The good results should not lead to over enthusiasm for surgical intervention. Rhinosinusitis is a multifactorial disease for which the primary mode of therapy remains medical management. All surgical series report the

results of surgery combined with medical management. In most cases, its recommend that surgery should be regarded adjunctive to environmental and medical management of rhinosinusitis.

There are positive things in our study, like its prospective design, the assessment of results done from the standpoint of the patient, and the no lost patients during follow-up as all of the patients continued the six months follow-up.

In conclusion, endoscopic sinus surgery done in patients with sino-nasal diseases in Sulaimaniya has been associated with statistically significant improvements on disease-specific Quality of Life after six months follow-up. The best outcome of ESS is for nasal obstruction, facial pain, nasal discharge, and sleep disturbance. Our suggestions are improving our surgical skills by attending more workshops and conferences and updating our knowledge, and pushing for more researches .

REFERENCES

1. James N. Palmer and David W. Kennedy, Concepts of Endoscopic Sinus Surgery: Causes of Failure, Paul W. Flint, Bruce H. Haughey, Mark A. Richardson, Cummings Otolaryngology Head & Neck Surgery, Fifth Edition ,Mosby Elsevier, 2010 ,pp774

2. Rudolf Probst , Gerhard Grevers , Heinrich Iro, Anatomy, Physiology, and Immunology of the Nose Paranasal Sinuses &Face. Basic Otolaryngology, Thieme ,2006 ,p.7.

3. Donald C. Lanza,David W. Kennedy, Endoscopic Sinus Surgery,Byron J. Bailey , Head and Neck Surgery - Otolaryngology,Third Edition, Lippincott Williams & Wilkins ,2001,p.278.

4. Valerie J Lund and Julian Rowe-Jones, Surgical Management of Rhinosinusitis, Michael Gleeson , Scott-Brown's Otorhinolaryngology, Head and Neck Surgery, 7th edition, Hodder Arnold,2008,Vol.2, pp.1481-2.

5. Amy Anne Lassig & Bevan Yueh, Outcomes research, Paul W.Flint, Bruce H. Haughey, Mark A. Richardson, Cummings Otolaryngology H & N Surgery, Fifth Edition,Mosby Elsevier, 2010, pp. 52-7.

6. Ingo Baumann, Subjective Outcomes Assessment in Chronic Rhinosinusitis, The Open OtorhinolaryngologyJournal,2010,4,28-33

7. Netkovski J., Sirgovska B., The Impact Of Functional Endoscopic Sinus Surgery On Symptoms In Chronic Rhinosinusitis, Prilozi, Odd. biol. med. nauki,Contributions, Sec. Biol. Med. Sci., MASA, XXVII, 2,2006, p. 167–174.

8. F.F. Fahmy, A. McCombe, D.C. Mckiernan,. Sino nasal assessment questionnaire, a patient focused, rhinosinusitis specific outcome measure,. Rhinology, 40, 2002, 195-197.

9. Michael Damm, GeroQuante, Markus Jungehuelsing, EberhardStennert, Impact of functional endoscopic sinus surgery on symptoms and quality of life in chronic rhinosinusitis. Department of Otorhinolaryngology--Head and Neck Surgery, University of Cologne, Cologne (Koeln), Germany.2002.http://www.ncbi.nlm.nih.gov/pubmed/11889389; accessed in 19-Jul-2013.

10. Alexander C. Chester, Symptom-specific outcomes of endoscopic sinus surgery: A systematic review, 2012 Journal Citation Reports

11. ThiagoFreire PintoBezerra ,Assessment of quality of life after endoscopic sinus surgery for chronic rhinosinusitis, Braz. j.otorhinolaryngol. vol.78 no.2 São Paulo Mar./Apr. 2012 .

12. Smith TL, Mendolia-Loffredo S, Loehrl TA, Sparapani R, Laud PW, Nattinger AB. Predictive factors and outcomes in endoscopic sinus surgery for chronic rhinosinusitis. Laryngoscope. 2005;115(12):2199-205.