

A Study To Evaluate The Surgical Outcome and Quality of Life Before and After Endoscopic Sinus Surgery in Chronic Rhinosinusitis



Medical Science

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ABSTRACT

Introduction: Chronic rhinosinusitis is a global health problem affecting approximately 1-4% to 5-15% of the population. Chronic rhinosinusitis is often responsible for high morbidity, diminishing the quality of life and thereby productivity. Objective: The aim of this study was to evaluate the quality of life of the patients before and after functional endoscopic sinus surgery and the surgical outcome of patients undergoing endoscopic sinus surgery. Methodology: This was an observational study of 12 months, 80 patients who diagnosed as chronic rhinosinusitis were recruited and followed up at 4 weeks, 3 months and 6 months after functional endoscopic sinus surgery. All 80 patients were subjected to Lund Kennedy endoscopic score and Sino-nasal outcome test-22 (SNOT-22) score before and after surgery followed by diagnostic nasal endoscopy. Results: The study revealed that the quality of life of patients analyzed using SNOT-22 showed significant improvement with each follow-up. The surgical outcome of patients showed significant improvement on objective assessment by endoscopic score and on subjective assessment by SNOT-22 score. Conclusion: The present study concludes that chronic rhinosinusitis has considerable adverse impact on quality of life of patients. SNOT-22 questionnaire is a valuable tool in assessing the quality of life in patients of chronic rhinosinusitis before and after surgery. Surgical outcome of the patients of chronic rhinosinusitis after functional endoscopic sinus surgery improved statistically (p value <0.001) in all the patients objectively and subjectively.

Introduction

Chronic rhinosinusitis is defined as a group of disorders characterized by inflammation of nasal and paranasal sinuses mucosa for at least 12 consecutive weeks duration⁽¹⁾. The presenting features consist of two or more symptoms one of which should be nasal blockage, nasal obstruction, nasal congestion or nasal discharge (anterior/posterior nasal drip) with or without facial pain/pressure with or without reduction or loss of smell for more than 12 weeks⁽²⁾. Chronic rhinosinusitis is essentially a medical condition, however in some cases which do not responds to medical treatment, surgical intervention may be required. The objective of functional endoscopic sinus surgery (FESS) is to minimally remove the inflamed mucosa and restore the ciliary transport mechanism and mucous clearance pathway⁽³⁾. SNOT-22 is a validated patient-reported measure of symptom severity and health related quality of life (QoL) in sinonasal conditions. The measures of QoL have evolved, to know the impact of CRS on the general health and well being of patient⁽⁴⁾. The aim of this study was to evaluate the QoL and surgical outcome of chronic rhinosinusitis patient who were treated with FESS after failure of medical treatment.

Material and methods

This study was conducted in the department of Otorhinolaryngology of a tertiary care teaching institute over a period of 12 months. A total of 80 cases of CRS were recruited from patients attending otorhinolaryngology department of the institute. The data were recorded as per proforma after taking written informed consent and prior permission from institutional ethical committee. Patients with history of previous nasal surgery and nasal malignancy were excluded. Patients diagnosed as case of CRS were subjected to SNOT-22 quality of life questionnaires

and self rated symptom score in their vernacular language followed by ENT examination including diagnostic nasal endoscopy (DNE), after application of vasoconstrictor, using 0 degree rigid endoscope (4mm). Lund Kennedy Endoscopic scoring system was used for signs of polyps, muco-purulent discharge primarily from middle meatus and/or edema/mucosal obstruction, scarring and crusting pre-operatively and post-operatively. The maximum score was 20 and the minimum score was 0. All the patients were asked to complete a disease specific quality of life questionnaire: Sino-Nasal Outcome (SNOT-22) comprising 22 questions. It includes assessments of nasal, paranasal and psychological symptoms, and those associated with sleep. The maximum score was 110 and the minimum score was 0. 0 indicates better QoL while 110 indicates worst QoL. Interpretation and analysis of data was carried out using parametric (unpaired 't' test) and Friedman test.

Results

In the present study, it was observed that the age distribution of the patients above 10 years (mean \pm SD, 37.11 \pm 14.09). Age group between 31-40 years was the commonest to be involved with 23 (28.75%) patients followed by age group between 21-30 years with 18 (22.5%) patients. Female patients were 43 (53.75%) and males were 37 (46.25%) with male to female ratio of 0.86:1. Rural population formed the larger part with 53 (66.25%) patients. Majority of patients 29 (36.25%) were homemaker by occupation followed by businessman 20 (25.0%). Most common presenting symptoms in the patients of CRS was nasal obstruction and nasal discharge observed in 78 (97.5%) and 57 (71.25%) patients respectively and 42 (53.84%) patients presented to the hospital within 1-3 years of onset of symptoms. In the present study, the mean \pm SD total QoL score in CRS patients pre-operatively was

86.18±12.8, 39 (48.75%) patients had score range between 9-110 followed by 37 (46.25%) patients with score range 61-90 (Fig 1). On analyzing the quality of life of patients undergoing FESS, SNOT-22 questionnaire compared with regular follow ups. The median± QD of SNOT-22 score pre-operatively was 90±7 which significantly decreased to 5±10.5 on 4 weeks, 2±2.5 on 3 month and 6±1 on 6 month follow-ups after surgery. P-value calculated by using Friedman test showed quality of life significantly improved in these patients at each follow-up (Table1). The surgical outcome of patients who diagnosed as chronic rhinosinusitis and underwent functional endoscopic sinus surgery had significant improvement on objective assessment by endoscopic score. Endoscopic score calculated pre-operatively and postoperatively at 4 weeks, 3 months and 6 months. The median value of score pre-operatively was 6±1.5 which reduced to median value 3±1 post-operatively at 4 weeks with significant p value (<0.001) as shown in Table 2. The surgical outcome improved also on subjective evaluation by SNOT-22 score. The median value of SNOT-22 score which was 90±7 pre-operatively significantly reduced to 5±10.5 at 4 weeks, 2±2.5 at 3 months and 1±1 at 6 months with significant p-value (<0.001) as shown in Table 2.

Discussion

In the present study, the mean ± SD age for patients was 37.11 ± 14.09 years. These findings were in accordance with most of the previous studies. Wang P C et al showed the mean age as 40 years (5) , Lt Col S Nair et al reported a mean age as 33.5 years (6) . The early presentation in our study may be due to increased awareness to health issues, exposure to various allergens due to their outdoor activity, and work efficiency being affected by symptoms of CRS leading the patients to seek early medical intervention. In our study, we observed slight female preponderance with 53.75%. These findings were consistent with the studies of Wynn R et al and Ishwar S et al who also reported a female preponderance with 54% and 53.3% females respectively (7,8) . Similar results were observed by Maramba P P et al with 59% females (9) . The reason for more number of females may be due to they are more exposed to household dust and kitchen smoke and hence are more prone to atmospheric and climate changes with subsequent rhino-sinusitis. In our study, majority of patients were homemaker 29 (36.25%). Ishwar S et al also found that homemakers were most commonly affected group constituting 43.33% of all patients (8) . This may be because homemakers are the group of the people who are most exposed to house dust and fumes. In the present study, the most common presenting symptom was nasal obstruction, seen in 78 (97.5%) patients and nasal discharge, seen in 57 (71.25%) patients. Valerie J et al also found nasal discharge (72%) and nasal blockage (70%) as the commonest presenting symptoms (10) . The high incidence of nasal obstruction can be attributed to the fact that patients presented to us probably in the later stage of the disease when frank polyposis had already been developed and due to the deviated nasal septum. In the present study, the mean± SD total quality of life score p-operatively was 86.18±12.8, 39 (48.75%) patients had score range 91-110 followed by 37 (46.25%) patients with score range 61-90 and no patients with score 0-30. Priyanka G et al concluded in their study that on comparing the QoL in the patients of CRS with the controls, it was observed that QoL was affected more in the patients of CRS in the physical, functional and emotional domain of their life. CRS has considerable adverse impact on QoL of patients and self rating score is a valuable tool in assessing the QoL in CRS patients (11) . Kennedy J L in their study commented that patient based outcome measures, such as SNOT-22, are helpful tools for quantifying changes in symptoms and can be used to predict extent of post-operative improvement (12) . On analyzing the quality of life of patients undergoing FESS, SNOT-22 questionnaire compared with regular follow ups. The median value which was 90±7 pre-operatively significantly reduced to 5±10.5 at 4 weeks, 2±2.5 at 3 months and 1±1 at 6 months. The p-value (<0.001) showed

quality of life significantly improved in these patients with each follow-up after using Friedman test. Igno B et al also showed similar results with significant QOL improvements observed 3 and 12 months post-operatively. Kennedy J L concluded all of the components of the SNOT-22 significantly improved after surgery(13), only “runny nose”, as well as “sadness” was independent predictors of post-surgical SNOT-22 improvement (12) .The surgical outcome of patients who diagnosed as chronic rhinosinusitis and underwent functional endoscopic sinus surgery had significant improvement on objective assessment by endoscopic score. Endoscopic score calculated pre-operatively and postoperatively at 4 weeks, 3 months and 6 months. The mean value of score pre-operatively was 6±1.5 which reduced to mean value 3±1 post-operatively at 4 weeks with significant p value (<0.001). The surgical outcome improved also on subjective evaluation by SNOT-22 score. The mean value of SNOT-22 score which was 90±7 pre-operatively significantly reduced to 5±10.5 at 4 weeks, 2±2.5 at 3 months and 1±1 at 6 months with significant p-value (<0.001). Nair S et al also analyzed the subjective parameters and objective evaluation for evaluating the success of endoscopic sinus surgery and concluded that FESS was an effective treatment for CRS (8) . So, this study showed that the patient of CRS underwent FESS had significant improvement on subjective and objective evaluation after surgery due to clearance of pathology at functional areas of the sinuses resulting in improved ventilation and drainage after FESS.

Conclusion

On comparison of endoscopic score and QoL score before and after surgery, we concluded that the surgical outcome of the patients of CRS after FESS improved statistically (p value <0.001) in all the patients objectively and subjectively. Our study concludes that CRS has considerable adverse impact on quality of life of patients which improves after FESS. And SNOT-22 questionnaire is a valuable tool in assessing the quality of life in patients of CRS before and after surgery.

Fig 1: SNOT-22 score of patients before endoscopic sinus surgery

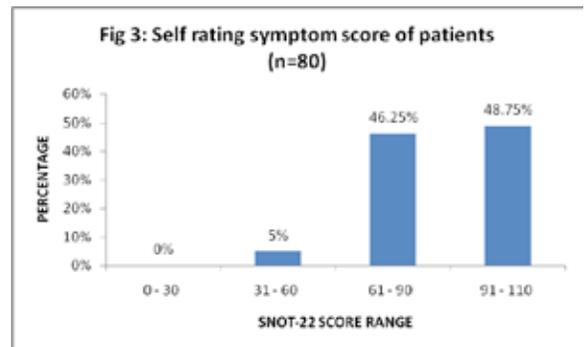


Table 1: Comparison of SNOT 22 pre-op score with all follow-up scores

Variables	Pre-op	4 weeks	3 month	6 month	p-value
Median± QD	90±7	5±10.5	2±2.5	6±1	<0.001

Table 2: Comparison of endoscopic score and SNOT-22 score among all scores at three different follow up

	Vari-ables	Pre-op	4 weeks	3 month	6 month	P value
Endo-scop-ic scores	Median± QD	6±1.5	3±1	1±0.5	2±0	<0.001
SNOT-22 scores	Median± QD	90±7	5±10.5	2±2.5	6±1	0.000

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