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Original Research Article

Quality of life after functional endoscopic sinus surgery

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ABSTRACT

Background: This paper aims to assess improvement in quality of life (QOL) after functional endoscopic sinus surgery through questionnaire sino-nasal outcome test (SNOT)-22.
Methods: The present study was conducted on 50 patients in Department of ENT and HNS, SMGS Hospital, GMC Jammu during a time period of July 2017 to September 2019. All the patients with age ≥18 years who failed to respond to medical therapy (3 months) and underwent functional endoscopic sinus surgery (FESS) were included in the study. SNOT-22 questionnaire was used to assess the improvement.
Results: In our study, preoperative SNOT scores were higher (54±8.05) but after FESS they reduced significantly at 1st (16.47±5.51), 3rd (13.86±4.19), 6th months (12.9±8.05) post operatively. Chronic rhinosinusitis (CRS) with nasal polyposis group had greater mean difference of SNOT-22 scores (43.93) between preoperative period and 3 months postoperative period than patients grouped as CRS without nasal polyposis (41.47).
Conclusions: We concluded that FESS is the best surgical intervention for chronic rhinosinusitis. It significantly improves the quality of life of patients of chronic rhinosinusitis.

Keywords: FESS, Quality of life, Chronic sinusitis, SNOT-22

INTRODUCTION

The European position paper on rhinosinusitis and nasal polyps proposed the criteria for diagnosis of chronic rhinosinusitis in adults as 12 or more weeks of persistent symptoms (nasal blockage, discharge, facial pain, reduction of smell) and signs (polyps, mucopurulent discharge, mucosal edema)with no complete resolution.[1] In pre-antibiotic era, surgical drainage of sinuses was a necessity in cases that had failed to resolve spontaneously and were often potentially life threatening. The indications of surgery have changed somewhat with a host of effective medical therapies now available, but despite these a cohort of patients remain in whom surgery will be required.[2]

Although a wide range of surgical procedures have been performed for treatment of acute and chronic rhinosinusitis, endoscopic sinus surgery has made great contribution towards management of sinus diseases. Treatment of chronic and recurrent acute sinusitis could be regarded as exercising a 'functional' approach, i.e., attempting to reverse pathophysiological processes by conservative surgery in defined areas dictated by disease. Functional endoscopic sinus surgery (FESS) is the mainstay of surgical treatment for these patients and improves quality of life (QOL) of patients. This subjective assessment of QOL can be measured by disease specific questionnaires.[3] The European position paper on rhinosinusitis and nasal polyps recommends the subjective assessment of symptoms using validated questionnaires.

This has resulted in the development of a number of CRS specific assessment tools such as SF36, RSOM-3, RSUI, RQLQ, SNOT-16, SN-5, SNOT- 11, SNOT-20, NOSE, CQ-7, SNOT-20 and SNOT-22 are the two validated patient reported measures of the symptom severity and health related QOL in sino nasal conditions. SNOT-22 (2009) is a modified version of SNOT-20 and RSOM-31. SNOT-22 covers the physical problems, functional limitations as well as the emotional consequences of patients who suffer from CRS.[4]

SNOT-22 contains 22 questions on CRS related symptoms. Symptom severity is graded from zero to five - with zero indicating no problem at all and five indicating the worst possible symptom. For each item, scores are added to produce a sum score on a scale ranging from zero to 110 with high scores indicating a large rhinosinusitis related health burden. The patients are also asked to identify which five items are most important to them. At the end of the questionnaire, the patient may state if he or she has had any symptoms that were not included among the 22 items.

This paper aims to assess improvement in QOL after functional endoscopic sinus surgery through questionnaire SNOT-22.

METHODS

This was a prospective study conducted on patients with sino-nasal disease at Department of ENT, SMGS Hospital, Government Medical College Jammu from July 2017 to September 2019 after ethical clearance from intuitional ethical committee. The patients with age ≥18 years who failed to respond to medical therapy (3 months) and underwent FESS for two main sub types of chronic rhinosinusitis (CRS) such as CRS without polyps and CRS with polyps were included in the study. The patients who had previous history of nasal surgery, revision FESS, associated malignant disease of nose and paranasal sinuses or any history of systemic disease were excluded. SNOT-22 questionnaire was used to assess the improvement. A total of 50 patients of chronic rhinosinusitis who consented to participate in the study were enrolled and then followed up. After proper evaluation and pre-anaesthetic check-up, patients were operated upon. The surgical procedures were performed along with the guidelines described by Messerklinger and Stammberger. The extent of surgery was determined by the severity of disease and the extent of involvement of sinuses as per preoperative CT scan and nasal endoscopy. It consisted of uncinectomy, middle meatal antrostomy, anterior ethmoidectomy, posterior ethmoidectomy, sphenoido-tomy, frontal sinus procedures, with or without septoplasty and inferior turbinate reduction. Patients underwent functional endoscopic sinus surgery under general anesthesia using rigid naso-endoscope (0º, 30º and 70º, 17 cm 4 mm endoscopy Karl Storz) with standard instrumentation.

During postoperative care, all 50 cases were hospitalized for 1 week, then were discharged after removal of merocel nasal packing. Oral antibiotics, analgesics were continued for 10 days. Topical steroids, started 15 days after surgery and continued if necessary. Patients also used alkaline nasal douche solution 20 ml in each nostril every 6 hours started just after removal of merocel until the surgical wound was completely healed and no crust was seen in the nasal cavity under endoscopic examination. Follow-up visits were done fortnightly for the first month then every month. In each visit nasal suctioning was done, crusts were removed and nasal cavity re-examined using rigid nasal endoscope to exclude complications as nasal adhesions.

All patients fulfilled the SNOT-22 at the time of admission, then at 1, 3 and 6 months postoperatively. They were given original SNOT 22 in English, which was also translated verbally to patients in local language for better understanding.

All statistical analyses were performed using SPSS statistical software. Values of $p<0.05$ were considered as significant results.

RESULTS

In our study, out of 50 patients, 33 were males (66%) and 17 were females (34%). Majority of patients belonged to 41-50 years, with mean age 38.3±7.12 years.

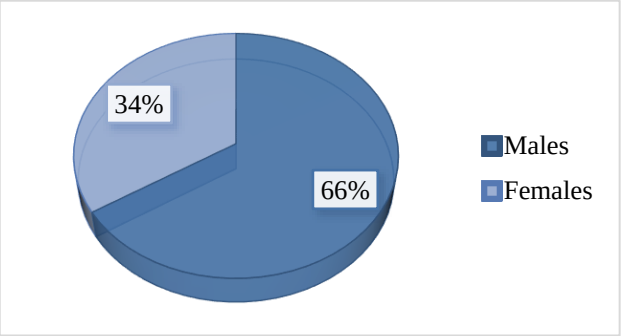

Figure 1: Sex wise distribution of patients.

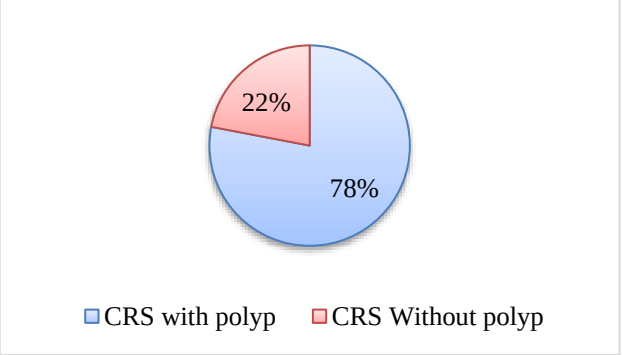

Figure 2: Patient presentation.

In our study, 11 patients (22%) were diagnosed as CRS without polyp, 39 patients (78%) were diagnosed as CRS with polyps.

In our study, preoperative SNOT scores were higher (54±8.05) but after FESS they reduced significantly at 1st (16.47±5.51), 3rd (13.86±4.19), 6 months (12.9±8.05) post operatively (Figure 3).

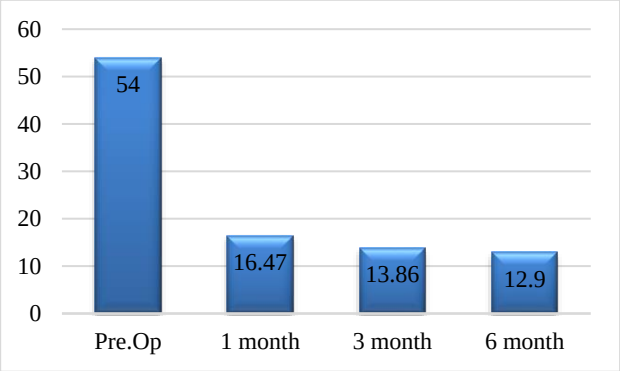

Figure 3: SNOT-22 scores.

Comparison with respect to preoperative snot 22 score shows more difference at 3rd post-operative month (Table 1).

Table 1: Comparison of SNOT-22 scores.

SNOT score	Mean difference	SD	P value
Pre-operative vs 1st month	37.53	8.05	<0.05
Pre-operative vs 3rd months	40.14	4.19	<0.05
Pre-operative vs 6th months	41.1	5.51	<0.05

In our study, we found that CRS with nasal polyposis group has greater mean difference of SNOT-22 scores (43.93) between preoperative period and 3 months post-operative period than patients grouped as CRS without nasal polyposis (41.47). This difference was however not statistically significant.

DISCUSSION

CRS is a health problem, the significance of which is believed to be rising both in terms of incidence and prevalence. It is a multifactor disease that affects the patient's QoL. In this respect, it is comparable to diabetes and heart disease.[5]

FESS is the treatment of choice for CRS patients not responding to drug therapy. In literature, there has been found a positive and great impact on quality of life of patients who underwent FESS.[6]

A number of disease specific questionnaires have been developed to measure quality of life of the patients such as CSS, rhinosinusitis disability index (RSDI), sino-nasal assessment questionnaire 11 (SNAQ-11) and SNOT-22. SNOT-22 is most widely used and validated questionnaire.[7,8] We have also used the same instrument for assessment of quality of life of patients after surgery.

Mean age of presentation of 38.3 years, with majority of patients in the age group of 41-50 years. Majority of patients in our study (66%) were males and 34% were females, coinciding with increased incidence of nasal polyposis in males (M:F=2:1).

In our study, majority of patients (78%) were grouped as CRS with polyposis and rest (22%) were grouped as CRS without polyposis. The quality of life of patients were assessed in the present study using SNOT-22 questionnaire.

In our study, we observed that SNOT-22 scores were higher in pre-operative period and then reduced significantly in post-operative period. Mean pre-operative SNOT-22 scores 54, which reduced to 16.47 at 1st month, 13.86 at 3rd month and 12.9at 6th months respectively. Qadeer et al in their study found that mean pre-operative SNOT-22 scores were found to be 52.31 which were reduced to 13.69, 11.26, 12.5 and 12.81 in post-operative 1st, 3rd, 6th and 12th months respectively post intervention.[3] This was in accordance to our study. Our preoperative score was higher than observed by Hopkin et al who showed significant improvement in mean scores after functional endoscopic sinus surgery from 42 in SNOT-22 before surgery to 25.5 in early post-operative period and 27.7 in late post-operative period, the improvement being of smaller magnitude than ours.[7] Mascarenhas et al in their study showed statistically significant improvement in mean SNOT-22 scores from 61.3to 16.9 in 3rd month and 32.3 in late post-operative period.[9] These observations were similar to preoperative and post-operative 3rd month SNOT scores of our study, but late follow up values are higher than observed in our study.

In our study, we found that patients grouped as CRS with nasal polyposis have more mean difference of SNOT-22 scores (43.93) between preoperative period and 3 months post-operative period than patients grouped as CRS without nasal polyposis (41.47). This means CRS with polyposis has better outcome than CRS without polyposis. This difference was statistically significant. There observations were similar to those of Kosugi et al, Saedi et al and Zhang et al.[10-12]

CONCLUSION

We concluded that FESS is the best surgical intervention for chronic rhinosinusitis. It significantly improves the quality of life of patients of chronic rhinosinusitis. Also,

we concluded that CRS with polyposis has better outcome than CRS without polyposis.

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Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

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ANNEXURE

SNOT-22 questionnaire used in our study.

I.D.:_____ **SINO-NASAL OUTCOME TEST (SNOT-22)** DATE:_____

Below you will find a list of symptoms and social/emotional consequences of your rhinosinusitis. We would like to know more about these problems and would appreciate your answering the following questions to the best of your ability. There are no right or wrong answers, and only you can provide us with this information. Please rate your problems as they have been over the past two weeks. Thank you for your participation. Do not hesitate to ask for assistance if necessary.

1. Considering how severe the problem is when you experience it and how often it happens, please rate each item below on how "bad" it is by circling the number that corresponds with how you feel using this scale: →	No Problem	Very Mild Problem	Mild or slight Problem	Moderate Problem	Severe Problem	Problem as bad as it can be		5 Most Important Items
1. Need to blow nose	0	1	2	3	4	5		○
2. Nasal Blockage	0	1	2	3	4	5		○
3. Sneezing	0	1	2	3	4	5		○
4. Runny nose	0	1	2	3	4	5		○
5. Cough	0	1	2	3	4	5		○
6. Post-nasal discharge	0	1	2	3	4	5		○
7. Thick nasal discharge	0	1	2	3	4	5		○
8. Ear fullness	0	1	2	3	4	5		○
9. Dizziness	0	1	2	3	4	5		○
10. Ear pain	0	1	2	3	4	5		○
11. Facial pain/pressure	0	1	2	3	4	5		○
12. Decreased Sense of Smell/Taste	0	1	2	3	4	5		○
13. Difficulty falling asleep	0	1	2	3	4	5		○
14. Wake up at night	0	1	2	3	4	5		○
15. Lack of a good night's sleep	0	1	2	3	4	5		○
16. Wake up tired	0	1	2	3	4	5		○
17. Fatigue	0	1	2	3	4	5		○
18. Reduced productivity	0	1	2	3	4	5		○
19. Reduced concentration	0	1	2	3	4	5		○
20. Frustrated/restless/irritable	0	1	2	3	4	5		○
21. Sad	0	1	2	3	4	5		○
22. Embarrassed	0	1	2	3	4	5		○

2. Please mark the most important items affecting your health (maximum of 5 items)_____ ↑