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Assessment of Quality of Life After Functional Endoscopic Sinus Surgery in Patients with Chronic Rhinosinusitis

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ABSTRACT
Chronic rhinosinusitis (CRS) is a disease caused by infection that often affects the ear, nose and throat. Chronic Rhinosinusitis (CRS) significantly affects the quality of life of sufferers. The main factors contributing to the spread of rhinosinusitis are the overall well-being, type of work and environmental factors. Most of the signs of CRS are not life-threatening but typically they result in a decreased quality of life by impacting individual's effectiveness. This study was carried out in the ENT department of a tertiary care hospital on 50 patients who had clinical symptoms, endoscopic findings, and CT-scan evidence of chronic rhinosinusitis (CRS) without a polyp. The patient's medical history was recorded, followed by various ENT examinations such as endoscopic examination of the nose and CT-scan imaging. All the surgeries such as uncinectomy, middle meatal antrostomy, anterior and posterior ethmoidectomy, or opening of the sphenoid sinus were carried out under general anaesthesia with orotracheal intubation and hypotensive method. All the patients had ongoing postoperative antibiotic and nasal steroid therapy and were routinely examined. The gathering of data utilised the Sinonasal Assessment Questionnaire-11 (SNAQ-11) as it has 11 items that encompass a wide range of symptoms related to sinonasal illnesses. A total of 50 patients were enrolled in this trial, with 32 (64%) being male and 18 (36%) being female. All the patients were aged between 18 and 60 years. Among them, 16 (32%) were in the age group of 25-35 years, followed by 14 (28%) in the age group of 35-45 years. The most frequent issue reported by patients before surgery was nasal blockage (100%), followed by nasal congestion (96%), facial discomfort (94%), runny nose (90%), front nasal discharge (76%), while the least common complaints were sneezing (28%) and ear pain (28%). The study indicates that this research demonstrates a notable increase in the patient's quality of life across all three categories with chronic rhinosinusitis, as measured by the SNOT-20 questionnaire. The Functional endoscopic sinus surgery conducted on patients with chronic rhinosinusitis has shown a statistically significant correlation with improved quality of life following a 24-month follow-up. There is a lack of data, thus more research are needed to acquire scientific proof on the usefulness of surgery provided to our community, as observed in studies conducted in other nations.

OPEN ACCESS

Key Words
Chronic rhinosinusitis (CRS), quality of life, functional endoscopic sinus surgery (FESS), SNAQ-11 (sinonasal assessment questionnaire-11), snot-20 (sinonasal outcome test)

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INTRODUCTION

Chronic rhinosinusitis (CRS) is a disease caused by infection that often affects the ear, nose and throat. Chronic Rhinosinusitis (CRS) significantly affects the quality of life of sufferers[1]. The main factors contributing to the spread of rhinosinusitis are the overall well-being, type of work and environmental factors[2]. The health burden and cost of treatment for persons with CRS are significant and possibly overwhelming[3]. Furthermore, the treatment of CRS requires a substantial amount of medical resources, in addition to its influence on quality of life.

It is a major factor in the prescription of antibiotics and in decreased worker productivity[4-7]. Chronic Rhinosinusitis (CRS) instances can be categorised according on the presence or absence of nasal polyps. Patients are classified based on clinical examination, histopathologic findings, interleukin profile and prognosis[8,9].

An essential part of achieving precise diagnosis and therapy of chronic rhinosinusitis (CRS) is a comprehensive history, thorough physical examination that includes nasal endoscopy and analysis using computed tomography (CT)[10]. Endoscopic sinus surgery (ESS) is currently the most often used surgical treatment for chronic rhinosinusitis (CRS). It is based on the idea that improving ventilation and drainage will help restore the function of the damaged sinonasal mucosa and promote mucociliary clearance[11-13].

Most of the symptoms of CRS are not life-threatening but they typically result in a reduced quality of life by impacting individual's effectiveness[14,15]. It is very important for ENT surgeons to be able to show and assess the clinical success of functional endoscopic sinus surgery (FESS). To achieve this goal, multiple "outcome measures"are employed Visual Analogue Score (VAS), Sino Nasal outcome Test (SNOT-20), Sino Nasal Assessment Questionnaire (SNAQ-11), Quebec French-Rhinosinusitis Outcome Measure (QF-ROM) and various others created in different ENT departments[16-18].

The key factor in assessing the effectiveness of CRS treatment is the enhancement of the patient's quality of life, which plays a vital role in evaluating the outcomes of RS treatment[19]. Quality of life varies from an individual's health condition. Quality of life encompasses not just physical well-being but also emotional and behavioural stability in the patient. The individual's personal experience is what reflects their health state, as well as other elements and circumstances related to their life that only they can define[20]. Functional endoscopic sinus surgery (FESS) is the preferred treatment for people with chronic rhinosinusitis (CRS) who do not respond to medication[8].

MATERIALS AND METHODS

This study was carried out at Shantabaa Medical College and General Hospital in the ENT department, involving 50 patients who had clinical symptoms, endoscopic findings and CT scan evidence of chronic rhinosinusitis (CRS) without a polyp. The criteria for participation involved individuals aged 18-60 years who had CRS without polyps and had not responded to medical treatment for more than 12 weeks. The criteria for exclusion included prior endoscopic sinus surgery, sinonasal tumours, congenital malformations, immunological deficiency, nasal polyps and patients who declined to participate in the trial. The patient's medical history was recorded, followed by various ENT examinations such as endoscopic examination of the nose and CT-scan imaging. All the procedures such as uncinectomy, middle meatal antrostomy, anterior and posterior ethmoidectomy, or opening of the sphenoid sinus were carried out using general anaesthesia with orotracheal intubation and a strategy to lower blood pressure. All the patients had ongoing postoperative antibiotic and nasal steroid therapy and were routinely examined.

The Sinonasal Assessment Questionnaire-11 (SNAQ-11) was utilised to gather data as it has 11 items that encompass a majority of the symptoms associated with sinonasal illnesses. The rating of this survey was determined by the intensity of symptoms, ranging from 0-5. A score of 0 indicates no issue, 1 indicates a very mild problem, 2 indicates a mild to slight problem, 3 indicates a moderate problem, 4 indicates a severe problem and 5 indicates the most serious problem possible.

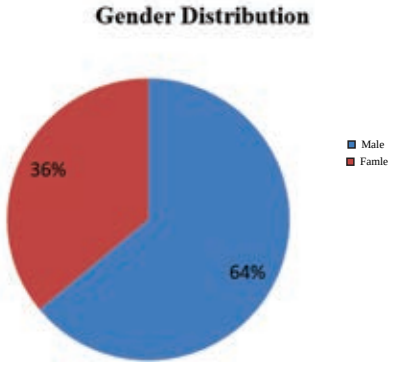

Fig. 1: Gender Distribution of patients

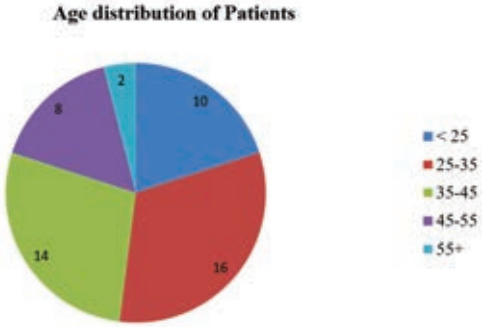

Fig. 2: The figure shows the age distribution of patients

Table 1: Gender and SNAQ-11 score

Gender	N = 50	Pre-op. mean SNAQ score	Post-op. mean SNAQ score	Mean difference	p-value*
Male	32	39.314	13.087	26.23	0.319
Female	18	36.495	11.975	24.52	

Table 2: Age groups and SNAQ-11 score

Age	N = 50	Pre-op. mean SNAQ score	Post-op. mean SNAQ score	Mean difference	p-value*
< 25	10	44.33	17.10	27.23	0.793
25-35	16	39.71	12.68	27.03	
35-45	14	38.34	12.51	25.83	
45-55	8	30.39	6.18	24.21	
55+	2	30.54	6.63	23.91	

Table 3: Prevalence of symptoms before and after surgery (FESS)

Symptoms	Pre-operative prevalence %	Postoperative prevalence %	p-value*
Nasal obstruction	100	60	NA
Nasal congestion	96	58	<0.001
Running nose	90	58	<0.001
Facial pain	94	48	<0.001
Post nasal discharge	76	44	0.004
Reduced smell	88	56	0.004
Cough	42	26	0.50
Sneezing	28	18	0.50
Headache	78	52	0.008
Sleep disturbance / fatigue	74	50	0.008
Earache/Ear fullness	28	18	0.50

RESULTS

A total of 50 patients were enrolled in this trial, with 32 (64%) being male and 18 (36%) being female. All the patients were aged between 18 and 60 years. Among them, 16 (32%) were in the age group of 25-35 years, followed by 14 (28%) in the age group of 35-45 years. The most frequent issue reported by patients before surgery was nasal blockage (100%), followed by nasal congestion (96%), facial discomfort (94%), runny nose (90%), discharge from the front of the nose (76%), and the least common complaints were sneezing (28%) and ear pain (28%).

DISCUSSIONS

This study was carried out in the ENT department of a tertiary care hospital on 50 patients who had clinical symptoms, endoscopic findings and CT-scan results indicating chronic rhinosinusitis (CRS) without a polyp. The duration of the present study's follow up was 24 months. However, in other similar studies conducted in different locations such as Delhi (India, 2006), USA (2010), China (2008) and Karnataka (India, 2002), the follow up durations were 9, 36, 12, 24 and 31 months, respectively.21-25 A total of 50 patients were enrolled in this study, with 32 (64%) being male and 18 (36%) being female. All the patients were aged between 18 and 60 years. Among them, 16 (32%) were in the age group of 25-35 years, followed by 14 (28%) in the age group of 35-45 years.

The quality of life is linked to the changes in endoscopic examination of CRS patients, however the enhancement in prognosis of postoperative nasal/sinus may only account for a small part of the improvement in QoL observed after FESS[24]. The validated disease-specific quality of life questionnaire for chronic rhinosinusitis (CRS) patients - SNOT-20 - has been extensively used worldwide and has just been validated in Portuguese[26].

The USA conducted a study in 2010 on the age distribution, which revealed that 30% of patients were in the age category of 21-30, while 27% were in the age group of 31-40[23]. This could be because younger patients who are more focused and engaged in their health are also more concerned about their Quality of life. The most frequent issue reported by patients before surgery was nasal blockage (100% of patients), followed by nasal congestion (96%), facial pain (94%), a runny nose (90%), anterior nasal discharge (76%), and the least common complaints were sneezing (28%) and earache (28%). The study conducted in Brazil found that the most common symptoms were nasal congestion (94%), postnasal drip (86%) and decreased sense of smell (63%). In another comparable study the study found that nasal blockage was present in 92% of participants, postnasal discharge in 87% and impaired smell in 66%[25]. The research carried out in India in 2010 found that the most common and widespread symptoms were postnasal discharge (95%), headache (91%), nasal discharge (90%) and nasal blockage (86%)[22]. Our discovery aligns with the research conducted by Bezzera TFP. *et al*.[26]

CONCLUSION

The study indicates that this research demonstrates a notable increase in the patient's quality of life across all three categories with chronic rhinosinusitis, as measured by the SNOT-20 questionnaire. The Functional endoscopic sinus surgery conducted in patients with chronic rhinosinusitis demonstrates a statistically significant association with improvement in the quality of life following a 24-month follow-up. There is a lack of data, thus more research are needed to acquire scientific proof on the usefulness of surgery provided to our community, as observed in studies conducted in other nations.

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