Section: ENT

Original Research Article

A STUDY TO ASSESS THE OUTCOMES OF FESS IN PATIENTS WITH CHRONIC RHINOSINUSITIS WITH OR WITHOUT SINO NASAL POLYPOSIS IN A TERTIARY CARE HOSPITAL

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ABSTRACT

Background: Chronic rhinosinusitis affects a large portion of the population, and its symptoms can be burdensome to patient's quality of life. Functional endoscopic sinus surgery (FESS) is usually required after medical therapies fail. **Objective**: To assess the outcomes of FESS in Chronic Rhinosinusitis with or without sinonasal polyps and to compare the pre and post operative subjective and objective indicators such as SNOT 22, Endoscopic findings.

Materials and Methods: This is a Retrospective study and the design was analytical. It is a Hospital Medical Record data based and the subjects were allocated into two groups – CRS with polyps and CRS without polyps group. Endoscopic surgery was conducted based on the evaluation of the affected sinuses determined during the pre surgical CT scan. All the patients underwent endoscopic sinus surgery. All patients were requested to fill out the SNOT 22 questionnaire three days before their surgery and again six months post surgery as part of our routine protocol at the institution.

Results: The nasal domain scores of SNOT 22 The mean ± standard deviation preoperatively was 16.74 ± 3.54, and postoperatively it was 8.04 ± 2.64, the Ear/Facial domain scores was 6.02 ± 2.04 preoperatively and 2.38 ± 1.14 postoperatively, the Sleep domain scores was 5.08 ± 1.97, while the postoperative mean ± standard deviation was 1.72 ± 1.42.

Conclusions: SNOT 22 scores improved significantly postoperatively across all domains, Significant correlations were found between polyps, type of sinuses affected, and surgery type, but not with comorbidities.

Keywords: Fess, Chronic Rhinosinusitis, Sino Nasal Polyposis.

INTRODUCTION

Chronic rhinosinusitis is a prevalent long term condition that significantly impacts a patients quality of life. However, there is a lack of published epidemiological studies on CRS within the Indian population. Despite its considerable prevalence, precise figures regarding its incidence and prevalence remain unavailable. Patients are initially treated medically, patients who fail to respond to maximum medical treatment undergo Functional Endoscopic Sinus Surgery (FESS) as a procedure of choice which can be minimal or extensive depending on the extent of disease.

A CT scan of the paranasal sinuses is typically recommended before surgery. While CT scans have become the preferred radiological method for diagnosing and planning surgery for sinus disease, they are not always sensitive or specific enough. It is common to encounter symptomatic CRS patients who do not show evidence of disease on CT scans.

MATERIALS AND METHODS

This is a Retrospective study the design was analytical with Sample size – 100 and study duration is 04 months (January 2025 to April 2025). Hospital Medical Record data for the study duration is collected and the subjects were allocated into two groups – CRS with polyps and CRS without polyps group.

Information concerning age, gender, diagnostic validation criteria, additional health conditions such as prior sinus surgery, absence of nasal polyps, asthma, intolerance to Acetylsalicylic acid (ASA), smoking status was gathered using medical records.

The Inclusion Criteria

1. Subjects diagnosed as CRS with or without polyps
2. Subjects aged 18- 70 years who did not respond to maximum medical therapy.
3. All consenting subjects with CRS (diagnosed as per EPOS 2020)

Exclusion Criteria

1. Subjects who were not willing to consent
2. Subjects with CRS but masses other than polyps
3. Age group < 18 years and >70 years
4. Malignancy of nose and paranasal sinus

Methodology

For each participant, after obtaining informed consent, their profile, general examination for the build and nourishment were documented.

An otorhinolaryngological examination was included.

Anterior rhinoscopy, Posterior rhinoscopy, Diagnostic nasal endoscopy, X ray PNS, CT Paranasal sinuses and Laboratory investigations were documented.

All participants had previously experienced treatment failure with medical management.

This included

1. A three week course of broad spectrum antibiotics (Amoxicillin 500mg + clavulanic acid 125 mg twice a day),
2. A three week course of topical nasal corticosteroids spray (Budesonide or Fluticasone 200 mcg),
3. A five day trial of systemic steroid therapy (Deflazecort 0.5 mg/kg body weight per day).

RESULTS

The study was conducted with Patient record data of 100 Chronic Rhinosinusitis subjects in ENT Department, Government ENT Hospital, Visakhapatnam, Andhra Pradesh.

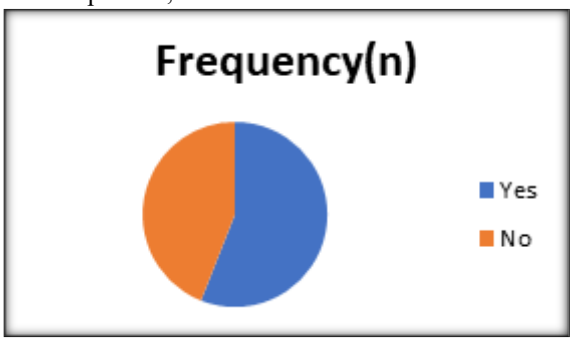

Figure 1

The table and figure above illustrate the distribution of the study sample based on the presence of polyps. Specifically, 56% of the subjects were diagnosed with polyps, while 44% were not.

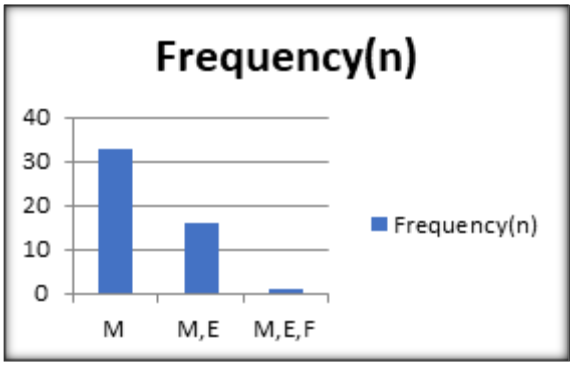

Figure 2

In the present study, the table and figure above illustrate the distribution of the study sample based on the prevalence of sinusitis and the Specifically, 66% of the subjects were diagnosed with maxillary sinusitis only, 32% had both maxillary and ethmoidal sinusitis, and 2% were affected by maxillary, ethmoidal, and frontal sinusitis.

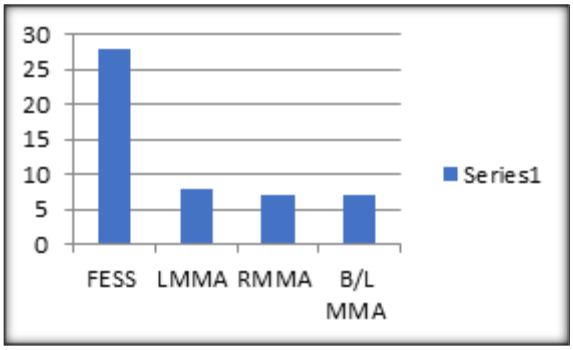

Figure 3

Distribution of study subjects based on the Polyps (N=100)

Polyps	Frequency(n)	Percent(%)
Yes	56	56%
No	44	44%
Total	100	100%

Distribution of study subjects based on type of sinuses affected (N=100)

Sinuses Affected	Frequency(n)	Percent(%)
M	66	66%
M,E	32	32%
M,E,F	2	2%
Total	100	100%

In the present study, the table and figure above illustrate the distribution of the study sample based on the prevalence of sinusitis and the Specifically, 66% of the subjects were diagnosed with maxillary sinusitis only, 32% had both maxillary and ethmoidal sinusitis, and 2% were affected by maxillary, ethmoidal, and frontal sinusitis.

Distribution of study subjects based on Type of Surgery (N=100)

Type of Surgery	Frequency(n)	Percent(%)
FESS	56	56%
LMMA	16	16%
RMMA	14	14%
B/L MMA	14	14%
Total	100	100%

Distribution of study subjects based on SNOT 22 (N=100)

Domain	Category	Mean	Std. Deviation	Std.Error Mean	t test	P value
Nasal	Pre Op	16.74	3.54	0.50	24.054	0.001
	Post Op	8.04	2.64	0.37		
	Absolute	8.7	2.55	0.36		

Distribution of study subjects based on SNOT 22 Domain (N=100)

SNOT 22 Domain	Category	Mean	Std. Deviation	Std.Error Mean	t test	P value
Ear/ Facial	Pre Op	6.02	2.04	0.28	15.14	0.02
	Post Op	2.38	1.14	0.16		
	Absolute	3.64	1.69	0.24		

In the present study, the table above shows the Ear/Facial domain scores of the SNOT 22, comparing preoperative and postoperative values. The mean ± standard deviation was 6.02 ± 2.04 preoperatively and 2.38 ± 1.14 postoperatively. A paired t test was used to determine statistical significance, revealing a significant difference between the preoperative and postoperative scores (t = 15.14, p = 0.02)

Distribution of study subjects based on SNOT 22 Domain (N=100)

SNOT 22 Domain	Category	Mean	Std. Deviation	Std.Error Mean	t test	P value
Sleep	Pre Op	5.08	1.97	0.28	13.25	0.01
	Post Op	1.72	1.42	0.2		
	Absolute	3.36	1.79	0.25		

In the present study, the table above presents the Sleep domain scores of the SNOT 22, comparing preoperative and postoperative values. The preoperative mean ± standard deviation was 5.08 ± 1.97, while the postoperative mean ± standard deviation was 1.72 ± 1.42. Using a paired t-test, a significant difference was found between the preoperative and postoperative scores (t = 13.25, p = 0.01).

Duration of illness	Type of Surgery				Total	Fischer Exact test	Statistical Significance
	FESS	LMMA	RMMA	B/L MMA			
<1 year	8(80%)	2(20%)	0	0	10	5.972	0.58
1 - 3 years	42(55.3%)	8(10.5%)	12(15.7%)	14(18.4%)	76		
4 - 5 years	6(42.8%)	6(42.8%)	2(14.3%)	0	14		
Total	56(56%)	16(16%)	14(14%)	14(14%)	100		

Distribution of study subjects based on SNOT 22 Domain (N=100)

SNOT 22 Domain	Category	Mean	Std. Deviation	Std.Error Mean	t test	P value
Function	Pre Op	4.20	1.16	0.16	14.015	0.001

	Post Op	1.34	1.22	0.17		
	Absolute	2.86	1.44	0.20		

In the present study, the table above displays the Function domain scores of the SNOT 22, comparing preoperative and postoperative values. The mean ± standard deviation was 4.20 ± 1.16 preoperatively and 1.34 ± 1.22 postoperatively. A paired t test revealed a significant difference between the preoperative and postoperative scores (t = 14.015, p = 0.001).

Distribution of study subjects based on the association between duration of illness and type of surgery(N=100) In the present study, the table above displays the association between the duration of illness and the type of surgery performed on the patients. Utilizing the Fisher's exact test, no significant difference was observed between the variables ($\chi 2$ 5.972,p = 0.58).

Distribution of study subjects based on the association between Polyps and type of surgery(N=100)

Polyps	Type of Surgery				Total	Fischer Exact test	Statistical Significance
	FESS	LMMA	RMMA	B/L MMA			
Yes	56(100%)	0	0	0	56	57.531	0.001
No	0	16(36.36%)	14(31.8%)	14(31.8%)	44		
Total	56(56%)	16(16%)	14(14%)	14(14%)	100		

In the present study, the table above indicates the correlation between the presence of polyps in patients and the type of surgery they underwent.

Employing the Fisher's exact test, a significant difference was detected between the variables ($\chi 2$ = 57.531, p = 0.001).

Distribution of study subjects based on the association between sinuses affected and type of surgery(N=100)

Sinuses Affected	Type of Surgery				Total	Fischer Exact test	Statistical Significance
	FESS	LMMA	RMMA	B/L MMA			
M	22(33.3%)	16(24.2%)	14(21.2%)	14(21.2%)	66	20.662	0.003
M,E	32(100%)	0	0	0	32		
M,E,F	2(100%)	0	0	0	2		
Total	56(56%)	16(16%)	14(14%)	14(14%)	100		

In the present study, the table above displays the relationship between the type of sinuses affected and the type of surgery undergone by the patients. Utilizing the Fisher's exact test, significant difference was found between the variables ($\chi 2$ =220.662, p = 0.003) In the present study Specifically, 56% underwent FESS, 16% underwent the LMMA procedure, 14% underwent RMMA, and 14% underwent bilateral MMA.

DISCUSSION

The current study did not report recurrence rates, showed significant improvements in SNOT-22 scores post-FESS, study highlight the efficacy of FESS in improving QOL for CRS patients. Current study involved 100 subjects with chronic rhinosinusitis (CRS) in the ENT Department. The majority were aged 21-40 years. 54% were Male and 52% were female. Common comorbidities included hypertension (22%), diabetes (22%), asthma (5%), heart disease (4%), and allergies (42%). Diagnoses showed 56% had polyps and 66% had maxillary sinusitis only. Surgical procedures included FESS (56%), LMMA (16%), RMMA (14%), and bilateral MMA (14%). Significant improvements in SNOT-22 scores were observed postoperatively across all domains. Significant correlations were found between polyps, the type of sinuses affected, and surgery type, but not with comorbidities.

The current study, while smaller and focusing on a different demographic, also demonstrated significant postoperative improvements in SNOT-22 scores across various domains. The current study highlights broad symptomatic relief following surgery, emphasizing improvements in specific quality-of-life domains.

CONCLUSION

The study involved 100 subjects with chronic rhinosinusitis at the ENT Department, Government ENT Hospital, Visakhapatnam. The majority were aged 21-40 years (54%), and 52% were male. Common comorbidities included hypertension (22%), diabetes (22%), asthma (5%), heart disease (4%), and allergies (42%). Diagnoses showed 56% had polyps, and 44% had sinusitis only. Most patients had been suffering for 1-3 years (76%). Surgeries included FESS (56%), LMMA (16%), RMMA (14%), and bilateral MMA (14%).

SNOT 22 scores improved significantly postoperatively across all domains:

Nasal: from 16.74 ± 3.54 to 8.04 ± 2.64

Ear/Facial: from 6.02 ± 2.04 to 2.38 ± 1.14

Sleep: from 5.08 ± 1.97 to 1.72 ± 1.42

Function: from 4.20 ± 1.16 to 1.34 ± 1.22

Emotion: from 4.10 ± 1.32 to 1.26 ± 1.24

Overall: from 36.14 ± 7.51 to 14.68 ± 4.72
Significant correlations were found between polyps, type of sinuses affected, and surgery type, but not with comorbidities.

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