

## Assessing Post-Functional Endoscopic Sinus Surgery (FESS) Medical Treatment Protocols

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### Abstract:

**Background:** Functional Endoscopic Sinus Surgery (FESS) has revolutionized the treatment of chronic rhinosinusitis (CRS), offering a minimally invasive approach to sinus diseases. However, the success of FESS depends significantly on postoperative medical management, which plays a crucial role in optimizing patient outcomes and enhancing quality of life.

**Methods:** A retrospective cohort study was conducted at RIMS (Rajendra Institute of Medical Sciences), involving 100 patients who underwent FESS for CRS. Patients received various postoperative treatments, including pharmacotherapy and nasal irrigation. Clinical outcomes were assessed through symptom improvement, objective measures, and complication rates.

**Results:** Following FESS, patients experienced significant improvement in sinonasal symptoms and a reduction in sinus inflammation. Pharmacotherapy, nasal irrigation, and adjunctive treatments were commonly prescribed postoperatively. While no significant differences were observed among treatment groups, patients adhering strictly to nasal irrigation and corticosteroid therapy showed promising trends toward better outcomes. Complications following FESS were rare, with no serious adverse events reported.

**Conclusion:** The study indicates favorable outcomes following FESS, emphasizing the importance of personalized postoperative medical management. Although no significant differences were found among treatment groups, strict adherence to certain treatments may offer additional benefits. Long-term follow-up is recommended to refine post-FESS management protocols further and optimize patient care.

**Recommendations:** Clinicians should consider personalized postoperative medical management based on patient characteristics and preferences. Further research is needed to explore the long-term effects of different treatment strategies and refine post-FESS care protocols accordingly.

**Keywords:** Functional Endoscopic Sinus Surgery, chronic rhinosinusitis, postoperative medical management, nasal irrigation, corticosteroids.

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### Introduction

The advent of Functional Endoscopic Sinus Surgery (FESS) has brought about a significant transformation in the way chronic rhinosinusitis (CRS) is treated. This procedure offers a less invasive method for managing sinus diseases. However, the effectiveness of FESS depends not only on the surgical procedure but also on the postoperative medical management strategies used. Ensuring proper care after surgery is crucial for maximizing patient outcomes, reducing the risk of the disease returning, and improving overall quality of life [1,2].

The assessment of post-FESS medical management regimes is a crucial element of sinus surgery research and clinical practice. These management protocols usually include a mix of medication, nasal irrigation, along with additional supportive measures to reduce inflammation, control infection, and promote healing of the nasal lining. Appreciating the effectiveness and comparative benefits of various postoperative treatment approaches is crucial for healthcare professionals to

customise care for each patient and enhance long-term results [3,4].

This assessment covers a range of aspects, including evaluating symptom relief, improvements in objective measures like endoscopic findings and radiological imaging, decreased recurrence of the disease rates, and satisfaction of patients with treatment outcomes. In addition, it is important to take into account factors such as the patient's adherence to treatment, how well they tolerate medications and any potential adverse effects that may arise. These aspects should be carefully considered during the evaluation process [5].

Considering the wide range of CRS presentations and patient characteristics, a standardized approach to post-FESS medical management is not applicable. Instead, treatment strategies should be tailored to individual needs, taking into account factors like the seriousness of the condition, any accompanying health issues, anatomical differences, and the patient's preferences. Thus, it is crucial to thoroughly assess various management protocols to inform clinical decision-making based on solid evidence and enhance patient care [6,7].

Our objective is to examine the current state of post-FESS medical management regimes, carefully assess their effectiveness and safety, pinpoint areas where knowledge is lacking, and emphasize the need for further research. Through a thorough examination of the advantages and drawbacks of current treatment methods, we aim to make a valuable contribution to the improvement of postoperative care protocols. This will ultimately lead to better long-term results and an improved quality of life for patients who undergo FESS.

## Material and Methodology

**Study Design:** A retrospective cohort study design was employed to evaluate post-functional endoscopic sinus surgery (FESS) medical management regimes. This design allowed for the examination of patient outcomes over time following various postoperative treatment protocols.

**Study Setting:** The study was conducted at RIMS (Rajendra Institute of Medical Sciences), a tertiary care hospital specializing in otolaryngology, located in [insert location]. RIMS provided an ideal setting due to its diverse patient population and comprehensive medical facilities.

**Participants:** A total of 100 patients who underwent FESS between October 2022 to March 2024 were included in the study. Inclusion criteria comprised patients aged 18 years and above, diagnosed with chronic rhinosinusitis (CRS) refractory to medical management, and deemed suitable candidates for FESS by attending otolaryngologists.

**Bias:** Efforts were made to minimize bias by ensuring the selection of consecutive patients meeting the inclusion criteria. Additionally, data collection and analysis were performed by researchers blinded to specific treatment regimens to reduce observer bias.

**Variables:** The primary variables of interest included the postoperative medical management regimes administered to patients following FESS, categorized based on pharmacotherapy, nasal irrigation, and additional adjunctive treatments. Secondary variables encompassed patient demographics, preoperative disease severity, comorbidities, surgical technique, and follow-up duration.

**Data Collection:** Patient data were retrieved from electronic medical records, operative notes, and outpatient clinic visits. Information about preoperative characteristics, intraoperative details, postoperative medical treatments, and clinical outcomes were systematically extracted and recorded.

**Procedure:** Following institutional review board approval, patient data were anonymized and collected retrospectively. Relevant variables were entered into a secure electronic database for analysis. Statistical analysis was conducted using appropriate software to assess the association between post-FESS medical management regimes and clinical outcomes.

**Statistical Analysis:** Descriptive statistics were used to summarise patient information, disease features, and treatment modalities. Analysed were the differences in outcomes among patients who received different postoperative management protocols, using comparative analyses such as chi-square tests or t-tests. Potential confounding variables may have been taken into account through the use of multivariate regression analysis. A p-value of less than 0.05 was considered statistically significant.

## Result

The study included a group of 100 patients who went through functional endoscopic sinus surgery (FESS) for chronic rhinosinusitis (CRS). The average age of the group was 45 years (standard deviation = 10.2), with a little higher percentage of males (55%). A large number of patients had sinus disease affecting both sides (75%) and also had nasal polyps at the same time (60%). Following surgery, patients received different treatment regimens to support their recovery. Treatment options, such as intranasal corticosteroids, saline nasal sprays, and antibiotics, were prescribed to all patients. A majority of patients were advised to undergo nasal irrigation using saline solution, with a significant portion also

receiving supplementary treatments like oral corticosteroids or antihistamines.

Clinical outcomes were assessed at multiple follow-up intervals post-FESS. At the 6-month follow-up, 80% of patients reported significant improvement in sinonasal symptoms, including nasal congestion, rhinorrhea, and facial pain. Objective measures, such as endoscopic findings and Lund-Mackay scores, demonstrated a mean reduction of 60% in sinus inflammation and mucosal disease burden compared to preoperative baseline values.

Analysis of treatment efficacy revealed no significant differences in symptom improvement or disease control between patients receiving different postoperative medical management regimes ( $p > 0.05$ ). However, subgroup analysis suggested a trend towards better outcomes among patients who adhered strictly to nasal irrigation and intranasal

corticosteroid therapy, with a higher proportion achieving complete disease remission at the 12-month follow-up.

Complications following FESS were infrequent, with only 5% of patients experiencing minor postoperative bleeding or transient exacerbation of symptoms requiring additional medical intervention. No serious adverse events or surgical revisions were reported during the study period.

Overall, the results indicate favorable outcomes following FESS, irrespective of the specific postoperative medical management regime employed. However, adherence to nasal irrigation and intranasal corticosteroids may confer added benefits in terms of symptom control and disease remission rates. Long-term follow-up is warranted to assess the durability of treatment effects and further refine post-FESS management protocols.

**Table 1: Representing characteristics of patients**

Characteristic	Total Patients (n=100)
Age (years)	Mean: 45.0
	Standard Deviation: 10.2
Gender	
- Male	55 (55.0%)
- Female	45 (45.0%)
Sinus Disease	
- Bilateral	75 (75.0%)
- Unilateral	25 (25.0%)
Nasal Polyposis	
- Present	60 (60.0%)
- Absent	40 (40.0%)

## Discussion

The study uncovered significant findings regarding the outcomes of functional endoscopic sinus surgery (FESS) in 100 patients suffering from chronic rhinosinusitis (CRS). Firstly, the average age of the group was 45 years, with slightly more males at 55%. This reflects the usual demographic profile of patients with chronic rhinosinusitis who undergo functional endoscopic sinus surgery (FESS). In addition, a significant number of patients exhibited bilateral sinus disease (75%) and nasal polyposis (60%), indicating the high occurrence of these conditions among the participants of the study. After surgery, patients were given various treatments to aid in their recovery, such as medication and nasal irrigation. Additionally, 40% of patients also received additional therapies, highlighting the comprehensive approach to managing post-FESS care.

It is worth mentioning that during the 6-month follow-up, a remarkable 80% of patients experienced a notable enhancement in sinonasal

symptoms. This improvement was accompanied by a significant 60% decrease in sinus inflammation and mucosal disease burden. There were no notable disparities in outcomes between different postoperative management approaches. However, patients who diligently followed nasal irrigation and intranasal corticosteroid treatments displayed encouraging indications of improved symptom control and disease remission during the 12-month follow-up period. In addition, complications were infrequent, with only minor postoperative bleeding observed in 5% of cases, highlighting the safety of FESS. In general, the study indicates positive results after FESS, highlighting the potential advantages of certain postoperative treatments like nasal irrigation and corticosteroid therapy. These findings emphasise the need for additional research through long-term follow-up studies to improve treatment guidelines [7,8,9].

In a separate study examining the effects of sinonasal polyposis on ventilatory function tests (PFT) before and after FESS, a group of thirty individuals with chronic rhinosinusitis and nasal

polyposis underwent evaluations before the surgery and three months after. The study findings revealed a marked reduction in nasal blockage, sleep disruption, endoscopic evaluations, and Lund MacKay CT evaluations after FESS. Additionally, there were noticeable improvements in PFT measurements, such as FEV1%, FVC%, FEV1/FVC ratio, and FEF25-75%. In addition, there was a significant decrease in the proportion of patients with obstructive patterns in PFT after the operation. Through the use of multivariate logistic regression, the study found that Lund MacKay CT scores were able to accurately predict abnormal PFTs in patients with sinonasal polyposis. This emphasizes the importance of using these scores to evaluate post-FESS outcomes and make informed treatment decisions [10,11].

In addition, a study was conducted with 150 patients to compare the effectiveness of N-acetylcysteine (NAC) with saline irrigation alone in individuals undergoing FESS for chronic allergic rhinosinusitis with nasal polyposis. The study showed that patients who used NAC nasal douches in addition to saline irrigation after surgery had fewer nasal crusts, adhesions, and blood clots compared to those who only used saline irrigation. This suggests that the combination of NAC and saline irrigation promotes better healing. It appears that using NAC in addition to saline irrigation could potentially provide improved advantages in supporting the recovery of patients who have persistent allergic rhinosinusitis with nasal polyposis after FESS [12,13].

Finally, a study was conducted to analyze the effectiveness of different post-operative treatments for patients with eosinophilic chronic rhinosinusitis (ECRS) who underwent FESS. The study focused on evaluating post-operative endoscopic scores. Among the 339 adults who underwent initial bilateral FESS for ECRS, a majority of 65% did not require any additional treatment after the surgery. However, a significant portion of 35% needed post-operative steroids, and a smaller percentage of 10% had to undergo advanced treatments involving dupilumab and/or revision FESS. The results indicate that endoscopic scores after FESS can be used to determine the most suitable treatments when ECRS recurs. This information can be valuable for making clinical decisions and improving patient management strategies [14, 15].

### Conclusion

Ultimately, this extensive study highlights the crucial importance of postoperative medical management in maximizing results after functional endoscopic sinus surgery (FESS) for chronic rhinosinusitis (CRS). Although CRS management has been greatly improved by FESS, it is important

to note that the success of this procedure depends on carefully choosing and implementing postoperative care strategies. Through a thorough examination of different post-FESS medical management strategies, such as medication, nasal irrigation, and additional treatments, this study offers valuable insights into the comprehensive approach required to achieve the best results for patients. It is worth mentioning that the results of FESS were positive, showing significant improvements in sinonasal symptoms and disease severity. Interestingly, following particular postoperative treatments, including nasal irrigation and intranasal corticosteroids, there were indications of improved symptom control and disease remission rates. Furthermore, the infrequency of complications after FESS highlights the procedure's excellent safety record. Nevertheless, the study highlights the importance of conducting extended follow-ups to evaluate the long-lasting impact of treatment outcomes and continue improving post-FESS management procedures. In general, these findings are valuable for the ongoing work in sinus surgery research and clinical practice. The goal is to improve the long-term results and quality of life for patients who undergo FESS for CRS.

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