

A STUDY ON TREATMENT OF SINONASAL POLYPOSIS WITH ADJUVANT STEROIDS

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Abstract

Background: The combined costs of direct medical care and time away from work due to chronic rhinosinusitis and sinonasal polyposis are substantial. Inflammation is central to the pathophysiology of Chronic Rhinosinusitis, and a wide range of medication, including topical corticosteroids, antibiotics, saline irrigations, and systemic steroids, is available to treat it with surgery being done in cases not responding to maximal medical therapy.

Material and Methods: This study was conducted at the Department of ENT at GSL Medical College and General Hospital, Rajamahendravaram, and Nimra Institute of Medical Sciences, Vijayawada, Andhra Pradesh, India between, January 2022 to May 2023. In this study, forty patients with Chronic Rhinosinusitis with Sinonasal Polyposis(CRSwP)are analyzed. In this study, pre and post operative systemic steroids were administered to 20 patients, while the other 20 received placebos. Critical data analysis was performed on operative and clinical information.

Results: This investigation is a double-blind, placebo-controlled trial assessing the effectiveness of pre- and post-operative systemic steroids in improving surgical outcomes for patients undergoing ESS for the treatment of CRSwP. We employed subjective and objective indicators of success. The major purpose of the research was to determine how steroid use affected these measures of subjective and objective well-being.

Conclusion: Finally, adjuvant steroids, which are given, provide a better symptom relief and can help prevent postoperative issues such as scarring, synechiae formation, postoperative crusting, and recurrence as well.

Keywords: Sinonasal, polyposis, adjuvant steroid therapy, and treatment

INTRODUCTION

Chronic Rhinosinusitis with Sinonasal Polyposis (CRSwP), is a common problem which causes a significant increase in the costs associated with both direct medical care and time lost from work. Inflammation plays a pivotal role in the pathophysiology of Chronic RhinoSinusitis (CRS), a condition that can be managed medically using a variety of different approaches. Antibiotics, saline irrigations, topical steroids and systemic steroids are all included in this category. Even with the most powerful treatment, it is impossible to cure every patient or bring all of their symptoms under control. This is a very unfortunate reality. When drug therapy has not been successful in treating these patients' symptoms, endoscopic sinus surgery (ESS) has been demonstrated to improve both the patients' symptoms and their quality of life.

Despite the fact that there is some debate regarding whether or not this is the best or most appropriate surgical technique, the majority of surgeons will recommend polypectomy, complete ethmoidectomy, and middle meatal antrostomy for patients who have Chronic Rhinosinusitis with Sinonasal polyposis (CRSwP). This may be done with or without frontal sinusotomy or sphenoidotomy. However, there is a noticeable lack of uniformity and guidelines⁴ when it comes to the drug regimen pre- and post-operatively administered to patients undergoing ESS for CRSwP, as well as the care of these patients.

Preoperative systemic steroids are recommended by certain surgeons because of the benefits they bring during and following surgery. These benefits include a reduction in edema, polyp burden, and blood loss. Perioperative steroids are commonly thought to provide a number of theoretical benefits that contribute to enhanced healing and outcomes. These benefits include a reduction in postoperative edema and scarring, as well as an inhibition of the intrinsic inflammatory disease. Systemic steroids have been extensively characterized to have a wide variety of potential side effects, ranging from mild symptoms such as gastrointestinal irritation to severe symptoms such as osteonecrosis of the femoral head, all of which are relevant to the current debate. One of the most common side

effects of systemic steroids is gastrointestinal irritation. Hence, some surgeons advise utilizing systemic steroids before to, during, and after surgery, whereas others do not make this recommendation. The purpose of the design of the placebo-controlled study that was developed to evaluate surgical outcomes was to zero in on specific surgical outcomes⁷ that occurred during the operation itself, as well as subjective and objective outcomes that occurred during the short and intermediate postoperative periods.

The primary objective of this study is to examine the subjective and objective outcomes of endoscopic sinus surgery (ESS) for the treatment of chronic rhinosinusitis with sinonasal polyposis in patients who have received peri-operative systemic corticosteroids.

MATERIALS AND METHODS

This study was conducted at the Department of ENT at GSL Medical College and General Hospital, Rajamahendravaram, and Nimra Institute of Medical Sciences, Vijayawada, Andhra Pradesh, India between January 2022 to May 2023. In this study, forty patients with chronic rhinosinusitis with sinonasal polyposis were analyzed. In this study, systemic steroids were administered to 20 patients, while the other 20 received placebos. Critical data analysis was performed on operative and clinical information obtained with follow up of 6 months. The Lund-McKay Symptom Questionnaire, is a tool that is utilized to evaluate patient-reported experience. A visual analogue scale (VAS) that measures six symptoms of nasal blockage, headache, facial pain/ discomfort, olfactory disturbance, nasal discharge and overall discomfort on a scale of 0 (no symptom) to 10 (extremely severe) was used. As a quantitative indicator, the Lund-Kennedy Endoscopy Scale is utilized (LKES). Patients diagnosed with CRSwP were included in the research. Patients in this subset of the Chronic Rhinosinusitis population are notoriously difficult to treat, with symptoms frequently returning after surgery in both the objective and subjective domains.

Inclusion Criteria

1. The chance to participate in the study was extended to adult patients with CRSwP who were scheduled to receive ESS for the treatment of their ailment.
2. The maximum age was 60.

Exclusion Criteria

1. Age 18 years below
2. People with Type 3 Diabetes
3. Hypertensive patients
4. Individuals with mucociliary problems and immunocompromised state were excluded.
5. The study excluded patients with allergic fungal rhinosinusitis (AFRS).

A randomized, placebo-controlled trial was developed to evaluate the effects of systemic steroids given for the recovery of patients with CRSwP undergoing ESS. Once it was confirmed that a given patient met the study's inclusion requirements, he or she was randomly assigned to receive either a placebo or systemic steroids for 7 days prior to surgery, followed by 14 days after surgery before the steroids were gradually tapered down. The dosage utilized was 30 milligrams prednisolone, taken once daily with breakfast. Clinical activity was expected to be sufficient at the moderate dose used for this investigation, and any potential short-term adverse effects were thought to be manageable. Both the real medicine and the placebo, multivitamin tablets, looked the same on the outside. After surgery, patients continued taking the drug for two weeks. After surgery, topical steroids were applied to both the patients and the placebo group. Post-operative monitoring continued for a full six months. Information was first gathered on the operation and its degree of difficulty, as well as the condition of the sinonasal mucosa. Subjective evaluation of patient symptoms and objective data from nasal endoscopy were recognized as two major outcomes in terms of postoperative information.

The time it took for surgery and the amount of blood that was estimated to be lost were both noted. The condition of the nasal and turbinate mucosa was also taken into account. The surgeon then makes an estimate of how many sinuses were opened and extent of disease cleared.

RESULTS

This investigation is a double-blind, placebo-controlled trial assessing the effectiveness of pre- and post-operative systemic steroids in improving surgical outcomes for patients undergoing ESS for the treatment of

CRSwP. We employed subjective and objective indicators of success. The major purpose of the research was to determine how steroid use affected these measures of subjective and objective well-being.

Patients undergoing ESS for the treatment of CRSwP often utilize preoperative systemic steroids on the grounds that they will make surgery easier. Less blood loss, enhanced visibility, and reduced tissue trauma are all contributing factors. This research aimed to add facts to a field where "best practices" are often subjective and inconsistent. This study's results show that the technical difficulty of surgeries varies, and that this variance is clinically relevant.

Table 1: Data on the Blood loss

Test/control			Frequency	Valid %	Cumulative %
Test	Valid	~100 ml	15	75.0	75.0
		~200 or more ml	5	25.0	25.0
		Total	20	100.0	
Control	Valid	~100ml	8	40.0	40.0
		~200 or more ml	12	60.0	60.0
		Total	20	100.0	

Table 1 representing the data on blood loss, both test and control is included. These variations were judged to be clinically significant, and they may have aided the test group's operating efficiency. Steroids giving improvement in these cases of sinonasal polyposis demonstrates their anti-inflammatory effects. It should be underlined that only in instances treated peri-operatively with steroids was maximum disease clearance possible.

Table 2: Number of Sinuses opened

Test/control			Frequency	%	Valid Percent	Cumulative %
test	Valid	8	20	100.0	100.0	100.0
control	Valid	4	12	60.0	60.0	60.0
		6	6	30.0	30.0	30.0
		8	2	10.0	10.0	10.0
		Total	20	100.0	100.0	100.0

Table 2 comprising the data on number of sinuses opened, both test and control is included. Each patient in the test group had their maxillary , ethmoid , frontal and sphenoid sinuses completely free of disease. Surgeon was unsatisfied with disease clearance in the remaining patients throughout the placebo group. As a result of poor lighting and heavy bleeding, surgeons could only access the maxillary and ethmoid sinuses. Finally, it's important to highlight the correlation between factors like surgical time, blood loss, mucosal health, and disease clearance.

The time taken taken for surgery was also comparatively less in the test group. The test group had a much lower median score for nasal block and facial discomfort than the placebo group does. The median score for nasal drainage was also different. The control group has eight people, while the experimental group has four. The median score for headache is the only symptom score that does not differ significantly between the test group and the placebo group. There are 6 in the placebo group and 5 in the active group. This may be the result of a confluence of factors that contribute to headaches. And there is a statistically significant difference between the groups on olfactory disturbance and the post operative 6wks total symptom score. 2 in the test and 7 in the placebo group. This can be explained well with the better disease clearance in the test group.

With respect to the objective outcomes the presence of post operative scarring, synechiae formation and noticeable crusting was 10 to 15 percent in the test group while it was 50 to 60 percent in the placebo group demonstrating the effect of steroids in having healthier cavities.

Table 3: Data on Recurrent polyps

Test/control			Frequency	Percent	Valid %	Cumulative Percent
test	Valid	absent	19	95.0	95.0	95.0
		mild	01	5.0	5.0	5.0
		Total	20	100.0	100.0	
control	Valid	absent	16	80.0	80.0	80.0
		mild	4	20.0	20.0	20.0
		Total	20	100.0	100.0	

Table 3 representing the data on recurrent polyps, both in test and control included. At 6 months, the risk of recurrence was evaluated. Its worth might go up with a follow-up endoscopic examination after 2 years. The increased recurrence rate in the placebo group can be explained by the fact that the disease was not completely eradicated.

DISCUSSION

Endoscopic polypectomy is used to treat chronic rhinosinusitis in patients who also have sinonasal polyposis. This has been solidly demonstrated over several decades. Yet, the use of corticosteroids and how they should be administered has been controversial for a long time. This controversy is the focus of this research. In this trial, we used oral prednisolone pills to provide systemic steroids. Prednisolone oral dosage for 3 weeks is 30 mg daily. Unfortunately, there are no available controlled dose-effect studies.

According to Lildhol, a medical polypectomy can be as effective as a snare-based polypectomy if only a brief course of systemic steroids is administered. The preceding statement is supported by this study as well. The administration of steroids prior to endoscopic surgery can greatly improve surgical outcomes for patients with severe illness. This is what the research has shown. In individuals with advanced disease, the potential benefits of this treatment may outweigh the low probability of serious side effects.

Sinonasal polyposis is best treated with intranasal steroids, according to the available literature. At this point, at least 16 randomized, controlled trials (RCTs) have demonstrated a significant improvement over placebo. Topical steroid treatments may not work for all patients. This could be because a very blocked nose prevents the spray from being evenly distributed throughout the nasal passages. Here's where endoscopic polypectomy really shines.

Although intranasal and systemic steroid treatment may not completely get rid of polyps, it will undoubtedly lower their size and the inflammatory activity of the mucosa, making surgery easier. However, because only a small percentage of spray reaches the middle meatus, we should not anticipate any influence on polyps there. In order to ensure the sinuses receive adequate air, it is essential that these vital locations be opened during surgery. The number of sinuses surgically opened in the placebo group was actually fewer than anticipated in this trial, but this impact was not seen in the prednisolone group. The lack of disease in the unopened sinuses was not the reason for the discrepancy; rather, it was due to technical limitations, especially with regard to visibility and bleeding. Surgical evaluation of sinonasal mucosa revealed a significant difference between the two groups, with significantly more cases of friable and inflammatory mucosa in the placebo group compared to the test group. Topical steroid use following polyp removal surgery has been found in controlled studies to reduce the risk of polyp recurrence. However, in severe situations of inflammation, the impact is only temporary. Many inferences relevant to the study aims can be made based on the data gathered and analyzed in this study. To begin with, it appears that pretreatment with systemic steroids can facilitate surgery by clearing the disease, enhancing the health of the sinonasal mucosa, and reducing the amount of bleeding that occurs during the procedure. For this reason, there is adequate evidence in the context of evidence-based management to recommend that all patients having ESS for CRSwP get systemic steroids prior to surgery.

Second, postoperative treatment with systemic steroids provides superior alleviation from symptoms like nasal blockage, loss of smell, facial pain, nasal discharge and general discomfort. Third, if the purpose of sinus surgery for these patients is to create an endoscopically healthy sinonasal cavity in the long run, then therapy with systemic steroids in the immediate post-operative period results in healthier sinus cavities . Therefore, there

is evidence to support the use of systemic steroids in the postoperative period to optimize the initial endoscopic appearance of the cavities in the practice of surgeons who provide intensive postoperative care for patients post-ESS, including debridement and medical therapy based on the endoscopic findings.

Conclusion

Finally, by giving adjuvant steroids, there is a better symptom relief and postoperative issues such as scarring, synechiae formation, and crusting can be reduced. This lessens the possibility of recurrence as well .

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Conflict of interest:

Nil

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