



## Intraoral Vs Intranasal Steroids for Sino nasal Polyposis in Patients Undergoing FESS

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### Abstract

**Background:** Comparison of intraoral and intranasal steroids in patients undergoing FESS treatment for sinonasal polyposis. **Methods:** Seventy-four patients with nasal polyposis in the age range 18-60 years of either gender were divided into 2 groups, each containing 37 patients. Group 1 patients were put on Fluticasone, 400 micrograms/day (intranasal steroid spray) and group 2 received Prednisolone 1 mg/Kg/day (oral steroid) each for 1 week. All patients underwent functional endoscopic sinus surgery (FESS). The total symptoms score, amount of blood loss, nasal endoscopic grade and quality of surgical field was recorded in both groups. **Results:** The mean pre symptom score in group 1 was 12.9 and in group 2 was 11.8 and post- symptoms score was 6.7 in group 1 and 6.1 in group 2. Maximum patients in group 1 (45%) and in group 2 (48%) had quality of surgical field score 6-7. A non- significant difference was observed ( $P > 0.05$ ). Nasal endoscopic grade 1 was seen in 4% in group 1 and 3% in group 2, grade 2 was seen in 24% in group 1 and 11% in group 2 and grade 3 was seen in 72% in group 1 and 86% in group 2. Maximum blood loss in group 1 was 50-100 ml seen in 38% followed by <50 ml in 34%, 100- 150 ml in 22% and 150-200 ml in 6%. In group 2, maximum blood loss was 50-100 ml seen in 62%, 100-150 ml in 24%, 7% each had <50 ml and 150-200 ml blood loss. **Conclusion:** Oral steroids found to be superior than intranasal steroids in decreasing symptoms, amount of blood loss and improving quality of surgical field.

**Keywords:** Functional Endoscopic Sinus Surgery, Nasal Endoscopy, Steroids, Sinonasal Polyposis

### INTRODUCTION

Sinonasal polyposis is commonly occurring chronic inflammation of the mucous membrane of the sinonasal tract.<sup>[1]</sup> These polyps are present in nasal cavity and sinuses leading to obstruction. These are the major cause of symptomatic sinusitis.<sup>[2]</sup> Clinically these appear as single or multiple soft tissue masses of varying sized and shape in either one side or both sides of nose as well as sinuses. The shape is usually polypoid. These

polyps appear as edematous, hyperplastic tissues. These are painless until enlarge to occlude and pedunculated.<sup>[3]</sup> The common site of occurrence is middle meatus. The size of these polyps increases with accumulation of mucus secreting glands and disordered vascular bed resulting in fluid and electrolytes collection.<sup>[4]</sup>

It is evident that these polyps are commonly seen among females as compared to males. The incidence value is approximately 1-4%.

Their number increases as age advances, reaching a peak in those aged 50 years and above.<sup>[5]</sup> The underlying disease identification is of paramount importance as without that the chances of recurrence of polyps is more. Hence, it is a big challenge for otolaryngologists to treat this owing to its severity, chronicity and aggressiveness.<sup>[6]</sup>

The presence of mucosal swelling and nasal rhinorrhea raises its allergic nature. Research demonstrated that the level of interleukine-5 (IL-5) elevates significantly in NP as compared to healthy subjects and the concentration of IL-5 was independent of the atopic status of the patient.<sup>[7]</sup> Steroids are widely used for the management of this condition. Functional endoscopic sinus surgery (FESS) is indicated when medical treatment has failed.<sup>[8]</sup> Considering this, the present study aimed at comparing intraoral and intranasal steroids in patients undergoing FESS treatment for sinonasal polyposis.

## MATERIALS & METHODS

Seventy- four patients with nasal polyposis in the age range 18-60 years of either gender were included in the study. Inclusion criteria used was patients with signs of nasal polyposis in prescribed age group, those

giving consent and those not using any form of steroids since 3 months. Exclusion criteria used was those not giving consent, using steroids and with systemic diseases.

Demographic data of all involved patients was noted in case file. A thorough examination was performed by an expert ENT surgeon. CT scan was advised in all patients. Allotment was done in 2 group, each containing 37 patients. Group 1 patients were put on Fluticasone, 400 micrograms/day (intranasal steroid spray) and group 2 received Prednisolone 1 mg/Kg/day (oral steroid) each for 1 week. All patients underwent functional endoscopic sinus surgery (FESS). The total symptoms score was recorded before and after treatment. The amount of blood loss, nasal endoscopic grade was recorded. Quality of surgical field was recorded as score 0-1 (no bleeding), 2-3 (slight bleeding, fairly easy surgery), 4-5 (slight bleeding, surgery mildly difficult), 6-7 (moderate bleeding, surgery moderately difficult), 8-9 (moderate to severe bleeding; surgery very difficult) and 10 (Surgery terminated due to severe bleeding) in both groups. Results of the study was compiled which was assessed statistically by using statistical package for social sciences (SPSS) package, version 19.0. The level of significance was set below 0.05.

## RESULTS

**Table 1:** Age and gender wise allotment of patients

Age group (Years)	Group 1	Group 2
18-28	8	10
28-38	14	15
38-48	10	8
48-60	5	4

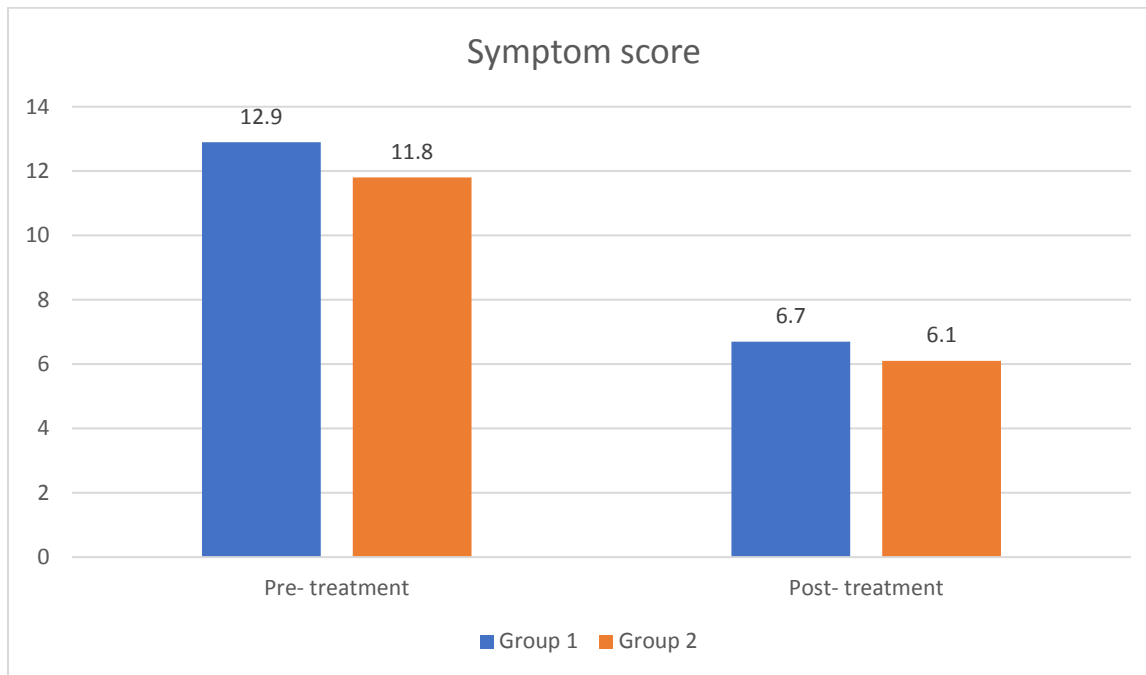
Maximum patients (29) were seen in age group 28-38 years followed by 18-28 years (18), 38-48 years (18) and 48-60 years (9). (Table 1).

**Table 2:** Comparison of pre- and post- treatment symptoms score

Symptom score	Group 1	Group 2	P value
Pre- treatment	12.9	11.8	Non- significant >0.05
Post- treatment	6.7	6.1	Non- significant >0.05
P value	<0.05	<0.05	

The mean pre symptom score in group 1 was 12.9 and in group 2 was 11.8 and post- symptoms score was 6.7 in group 1 and 6.1 in group 2. A non- significant difference was observed on inter- group comparison ( $P > 0.05$ ) (Table 2, graph 1).

**Graph 1**



**Table 3:** Comparison of Variables

Variables	Parameters	Group 1	Group 2	P value
Nasal endoscopic grade	Grade 1	4%	3%	Significant <0.05
	Grade 2	24%	11%	
	Grade 3	72%	86%	
Amount of blood loss (ml)	<50	34%	7%	Significant <0.05
	50-100	38%	62%	
	100-150	22%	24%	
	150-200	6%	7%	

Nasal endoscopic grade 1 was seen in 4% in group 1 and 3% in group 2, grade 2 was seen in 24% in group 1 and 11% in group 2 and grade 3 was seen in 72% in group 1 and 86% in group 2. Maximum blood loss in group 1 was 50-100 ml seen in 38% followed by <50 ml in 34%, 100- 150 ml in 22% and 150-200 ml in 6%. In group 2, maximum blood loss was 50-100 ml seen in 62%, 100-150 ml in 24%, 7% each had <50 ml and 150-200 ml blood loss. A significant difference was observed ( $P < 0.05$ ) (Table 3).

**Table 4:** Assessment of quality of surgical field

Quality of surgical field	Group 1	Group 2	P value
0-1	0	0	Non- significant > 0.05
2-3	0	4%	
4-5	24%	35%	
6-7	45%	48%	
8-9	31%	13%	
10	0	0	

Maximum patients in group 1 (45%) and in group 2 (48%) had quality of surgical field score 6-7. A non- significant difference was observed ( $P > 0.05$ ) (Table 4).

## DISCUSSION

Patients with inflammatory airway diseases have increased incidence of nasal polyposis. The aetiology of it is unknown.<sup>[9]</sup> Factors such as genetic, anatomic, allergic, inflammatory, and neurovascular factors have been proposed as pathogenesis of disease.<sup>[10]</sup> Studied have found associations of it with allergic or non- allergic atopic rhinitis, asthma, infection, cystic fibrosis etc.<sup>[11,12,13]</sup> Patients experience watery discharge from nose, nasal blockage and difficult breathing from nose. Secretions are removed by noisy sniffing as 'postnasal drip'.<sup>[14]</sup> A feeling of congestion is observed due to presence of many goblet cells and few seromucous glands in paranasal sinuses. There is obliteration of sinus ostia may contribute to pressure over the sinuses and headache. Patients may suffer loss of smell and taste.<sup>[15]</sup> In this study we compared intraoral and intranasal steroids in patients undergoing FESS treatment for sinonasal polyposis.

It was found that age group 18-28 years had 8 in group 1 and 10 in group 2, 28-38 yearshad 14 in group 1 and 15 in group 2, 38-48 years had 10in group 1 and 8 in group 2 and 48-60years had 5 in group 1 and 4 in group 2. In a study by Jagannathet al,<sup>[16]</sup> 60 patients of nasal polyposis were classified into 2 groups of 30 each based on intranasal steroid spray (group A) and oral steroid (group B). It was seen that most of the patients in both the groups had moderate bleed. 33.3% in group B patients had slight bleeding and 33.3% patients of Group B had moderate to severe bleed. About 53.3% patients had a blood loss of about 50-100 ml, of which 66.7% patients belonged to Group B.

In this study it was found that mean pre symptom score in group 1 was 12.9 and in group 2 was 11.8 and post- symptoms score was 6.7 in group 1 and 6.1 in group 2. Nasal endoscopic grade 1 was seen in 4% in group 1 and 3% in group 2, grade 2 was seen in 24% in group 1 and 11% in group 2 and grade 3 was seen in 72% in group 1 and 86% in group

2. Shruthy et al,<sup>[17]</sup> conducted a study in which out of 60 participants of sino-nasal polyposis, 63.4% were males. In 63.4% patients, ethmoidal polyp was the most common followed by antrochoanal polyp in 33.4%. Age group 31-40 years had ethmoidal polyp and 11-20 years had antrochoanal polyp. Ethmoidal polyp and antrochoanal polyp were observed more commonly in males and females respectively. Nasal obstruction and nasal discharge were common symptoms among patients.

It was seen that maximum blood loss in group 1 was 50-100 ml seen in 38% followed by <50 ml in 34%, 100- 150 ml in 22% and 150-200 ml in 6%. In group 2, maximum blood loss was 50-100 ml seen in 62%, 100-150 ml in 24%, 7% each had <50 ml and 150-200 ml blood loss.

Corticosteroids are routinely used pre, intra and post operatively in nasal polyp patients. They show their effect by binding to cytoplasmic glucocorticoid receptor cell.<sup>[18]</sup> It enhances tissue remodelling and significantly decreases symptoms by reducing

inflammatory mediators in the nose and sinus mucosa by suppressing cytokine synthesis in eosinophils and basophils. It has beneficial role in increasing the spastic reactivity of the smooth muscles and heighten the effects of endogenous adrenaline and noradrenaline in causing vascular constriction.<sup>[19]</sup> It is demonstrated that fluticasone propionate aqueous nasal spray can decrease polyp size and symptoms caused by nasal polyps. It has fewer odours, causing less run out or throat run down and having fewer after tastes. Rino et al<sup>20</sup> conducted a study using fluticasone propionate nasal spray in nasal polyposis in which burning sensation and malaise was observed in few patients complaining of mild following the which was seen to have subsided in few days.

## CONCLUSION

Oral steroids found to be superior to intranasal steroids in decreasing symptoms, amount of blood loss and improving quality of surgical field.

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