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EFFICACY OF INTRA-TURBINAL INJECTION OF HYDROCORTISONE IN ALLERGIC RHINITIS

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Dr. Jyothi A C Professor & HOD, Department of ENT, Navodaya medical college hospital and research centre.

Dr. Vaishnavi K Junior resident, Department of ENT, Navodaya medical college hospital and research centre.

Dr Shweta Sawant Associate Professor, Department of ENT, Navodaya medical college hospital and research centre.

Dr. Harshavardhan Patcha* Junior resident, Department of ENT Navodaya medical college hospital and research centre. *Corresponding Author

ABSTRACT

Background: Allergic rhinitis (AR) is a prevalent chronic inflammatory disorder of the nasal mucosa that significantly affects quality of life. While intranasal corticosteroids and antihistamines are the mainstay of treatment, intraturbinal injection of hydrocortisone offers a potential alternative for sustained symptom relief. ***Objective:*** This study evaluates the efficacy and safety of intraturbinal hydrocortisone injections in patients with moderate-to-severe allergic rhinitis. ***Methods:*** A prospective, randomized controlled study was conducted on 100 patients diagnosed with allergic rhinitis. Participants were divided into two groups: Group A (n=50) received intraturbinal hydrocortisone injections, while Group B (n=50) received standard treatment with intranasal corticosteroids and antihistamines. Symptom severity was assessed using a Total Nasal Symptom Score (TNSS) at baseline, 2 weeks, and 4 weeks post-treatment. Adverse events were recorded. ***Results:*** Patients in Group A showed significant improvement in TNSS compared to Group B at both 2 and 4-weeks post-treatment ($p<0.05$). The intraturbinal injection group also demonstrated a longer duration of symptom relief. No major adverse effects were noted, apart from mild transient discomfort at the injection site. ***Conclusion:*** Intraturbinal injection of hydrocortisone is an effective and well-tolerated treatment modality for allergic rhinitis, offering prolonged symptom control compared to conventional therapy. Further studies with larger sample sizes and long-term follow-up are recommended.

KEYWORDS

Allergic rhinitis, intraturbinal injection, hydrocortisone, corticosteroids, nasal symptoms

INTRODUCTION

Allergic rhinitis (AR) is a chronic inflammatory condition of the nasal mucosa triggered by allergen exposure. It affects a significant proportion of the population and is associated with symptoms such as nasal congestion, rhinorrhea, sneezing, and nasal pruritus [1]. Traditional management includes antihistamines, intranasal corticosteroids, and immunotherapy [2]. However, some patients experience inadequate relief or require frequent medication use, necessitating alternative treatment approaches.

Intraturbinal corticosteroid injections have been explored as a potential therapeutic modality, providing localized and prolonged anti-inflammatory effects [3]. Hydrocortisone, a widely used corticosteroid, has shown promise in reducing nasal mucosal inflammation and improving symptoms in AR patients [4]. This study aims to evaluate the efficacy and safety of intraturbinal hydrocortisone injections in patients with moderate-to-severe allergic rhinitis.

Objectives

This study evaluates the efficacy and safety of intraturbinal hydrocortisone injections in patients with moderate-to-severe allergic rhinitis.

MATERIALS AND METHODS

Study Design and Participants

This prospective, randomized controlled trial was conducted in the Department of ENT at a tertiary care hospital over a 12-month period. A total of 100 patients aged 18 to 60 years with a confirmed diagnosis of moderate-to-severe allergic rhinitis based on clinical criteria and skin prick tests were recruited.

Inclusion Criteria:

- Persistent allergic rhinitis for at least one year
- TNSS > 6 at baseline
- Inadequate response to routine therapy

Exclusion Criteria:

- Nasal polyps or structural deformities
- Chronic sinusitis
- Recent nasal surgery (within the past 6 months)
- Systemic corticosteroid use in the past 4 weeks
- Pregnancy or lactation
- Patients with Diabetes mellitus

Randomization And Interventions

Patients were randomly assigned into two groups using computer-generated random numbers:

- **Group A (n=50):** Received a single intraturbinal injection of 25 mg hydrocortisone per inferior turbinate under topical local anaesthesia using a 26 1 1/2-gauge needle.
- **Group B (n=50):** Received standard medical therapy comprising daily intranasal fluticasone spray (100 mcg BID) and oral cetirizine (10 mg OD).

Follow-Up and Outcome Measures

Patients were evaluated at baseline, 2 weeks, and 4 weeks after treatment. The primary outcome was change in TNSS. Secondary outcomes included patient-reported relief and occurrence of adverse effects. TNSS was calculated by summing scores (0 = no symptom, 3 = severe) for nasal congestion, rhinorrhoea, sneezing, and nasal itching.

Data Analysis

Statistical analysis was performed using SPSS v25. Paired and unpaired t-tests were used for intra- and intergroup comparisons. A p-value <0.05 was considered statistically significant.

Ethical Clearance

Prior to the commencement, the ethical clearance was obtained from Ethics and Research Committee.

RESULTS

Demographics and Baseline Characteristics

Both groups were comparable in terms of age, gender distribution, and baseline TNSS ($p>0.05$). The mean age of participants was 34.5 years in Group A and 35.2 years in Group B. There were 29 males and 21 females in Group A and 28 males and 22 females in Group B.

TNSS Improvement

At 2 weeks, Group A showed a marked reduction in TNSS compared to Group B (3.6 ± 1.2 vs. 5.8 ± 1.5, $p<0.05$). At 4 weeks, further improvement was noted in Group A (2.9 ± 1.1) while Group B showed moderate improvement (5.1 ± 1.3).

Patient-Reported Outcomes

Subjective patient satisfaction scores, recorded using a 5-point Likert scale at the end of 4 weeks, were markedly higher in Group A. Approximately 86% of patients in Group A rated their satisfaction as "very good" or "excellent" compared to only 60% in Group B. This difference was statistically significant ($p < 0.01$), emphasizing the clinical efficacy and patient-perceived benefit of intraturbinal hydrocortisone injection.

Adverse Effects

No major adverse effects were observed in either group. In Group A, a few patients reported mild local discomfort or nasal fullness post-injection, which resolved spontaneously without intervention. No systemic complications were reported, and there were no dropouts due to adverse reactions in either group.

Table 1: Comparison Of TNSS Scores Between Groups

Time Point	Group A (Hydrocortisone Injection)	Group B (Standard Therapy)	p-value
Baseline	9.2 ± 1.4	9.1 ± 1.3	>0.05
2 Weeks Post-Tx	3.6 ± 1.2	5.8 ± 1.5	<0.05
4 Weeks Post-Tx	2.9 ± 1.1	5.1 ± 1.3	<0.05

Table 2: Patient-Reported Outcomes at Week 4

Outcome	Group A (%)	Group B (%)
High Symptom Relief	86%	60%
Moderate Symptom Relief	12%	30%
No Significant Improvement	2%	10%

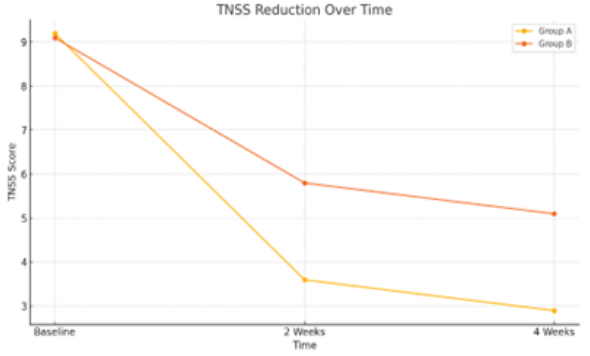

Figure 1: TNSS Reduction Over Time
(Graph showing decline in TNSS for both groups with steeper decline in Group A.)

DISCUSSION

This study highlights the therapeutic potential of intraturbinal hydrocortisone injections in managing allergic rhinitis. The significant reduction in TNSS in Group A compared to Group B demonstrates the superior efficacy of localized corticosteroid delivery. Unlike standard systemic or topical therapies, intraturbinal injection ensures direct deposition at the site of inflammation, enabling rapid symptom resolution with minimal systemic exposure [3,4].

The high patient satisfaction rate and minimal adverse effects suggest that this approach is not only effective but also well-tolerated. Additionally, the extended duration of symptom relief observed in Group A supports the role of depot steroid action in maintaining mucosal stability and suppressing allergic inflammation [5].

Limitations of the study include short follow-up duration and the lack of long-term outcome assessment. Nonetheless, the results advocate for further exploration of this technique in larger and multicentric trials.

CONCLUSION

- Intraturbinal injection of hydrocortisone significantly reduces nasal symptoms in allergic rhinitis.
- It offers prolonged symptom relief compared to standard therapy.
- The procedure is safe and well-tolerated with minimal adverse effects.
- It can be considered a valuable adjunct in patients unresponsive to conventional treatments.
- Larger and longer-term studies are recommended to validate these findings.

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