

Effectiveness of Intranasal Steroid Spray (Fluticasone Furoate) on Allergic Rhinitis: A Cross-sectional Study

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Abstract:

Background: Treatment for allergic rhinitis in addition to avoidance of allergens, involves various medications, including antihistamines, leukotriene receptor antagonists, and both topical and systemic corticosteroids. Fluticasone furoate is commonly used as a topical steroid, with intranasal steroid sprays are considered as the most effective option. However, there is a lack of established evidence regarding the effectiveness and safety of intranasal steroids.

Objectives: The primary aim of the present study is to assess the efficacy of intranasal steroid spray (specifically, fluticasone furoate) in treating allergic rhinitis. **Methods:** In our study, we conducted a prospective cross-sectional investigation involving 155 patients with allergic rhinitis who visited the outpatient department of City Medical College Hospital. The selected patients were provided with a questionnaire to

gather information concerning their symptoms, usage of intranasal steroids, and any related concerns.

Results: All 155 patients completed the questionnaire. Among them, every patient utilized of intranasal steroid spray for the last one year. Our study reported that 82.58% patients are benefited by using intranasal steroid spray, 78.71% report better airway, and 76.77% observe a decrease in nasal discharge with multiple responses simultaneously. A total of 17.42% report no benefit at all, while 13.55% note a rebound effect, with 1.29% experiencing epistaxis. **Conclusion:** The practical effectiveness and occurrence of adverse events associated with intranasal steroid sprays closely mirror the findings observed in clinical trials.

Key words: Allergic Rhinitis, Intranasal Steroid Spray, Fluticasone Furoate.

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Introduction:

Allergic rhinitis is defined as an inflammation of the nasal membranes¹. Sufferers usually complain of nasal obstruction, watery rhinorrhea, sneezing, itching, impairment of smell and frequently have comorbidities, such as poor-quality sleep, asthma, sinusitis and otitis media with effusion². Approximately 25% children and 40% adults are affected by allergic rhinitis globally³. Allergic rhinitis is classified on the basis of pattern (seasonal, perennial or episodic), frequency (persistent or intermittent), and severity of symptoms (mild, moderate and severe)⁴. There have been several guidelines to control AR issued by professional organization. Therapeutic approaches to control allergic rhinitis include avoidance of allergens, pharmacologic therapy and immunotherapy². Among all the pharmacological therapies available, intranasal corticosteroids (INS) are recommended first line in guidelines for moderate-to-severe seasonal allergic rhinitis^{5,6}. In the treatment of AR, corticosteroids have multiple pharmacologic actions, including specific effects on inflammatory cells (such as basophils and eosinophils) and chemical mediators (such as leukotrienes, prostaglandins, and histamines) involved in the allergic process⁶. There are many available topical corticosteroid molecules. Among them fluticasone and mometasone have the least bioavailability and so are

used as the treatment of choice for anything more than mild intermittent rhinitis in our clinics². Despite its proven effectiveness, it is observed that the efficacy in clinical practice is often lower due to several factors which include patient perceptions and preferences, side effects, method of delivery, presence of sensory attributes experienced etc⁷. Device and formulation-related side effects may reduce patient compliance and patient satisfaction with currently available INS therapies⁶. Current study is aimed to investigate the effectiveness of intranasal steroid spray (fluticasone furoate).

Methodology:

This is a cross-sectional study conducted over the period of October 2022– October 2023, in outpatient Otorhinolaryngology department of City Medical College Hospital. A total of 155 patients who attended the outpatient department (OPD) with diagnosed allergic rhinitis were enrolled in this study. Patients of both sexes (male and female) aged 18 – 65 who were using intranasal steroid sprays (Fluticasone furoate) within the past 6 months for the treatment of allergic rhinitis were included in this study. Exclusion criteria was comprised of patients who declined to use INS spray as treatment, pregnant women and patients on long-term steroids or immunosuppressants. The purpose of the study was explained in detail to each participant. After taking informed written consent, a semi structured questionnaire was delivered to all participants to collect sociodemographic data, pattern of INS spray use, benefits and side effects of INS spray. Sociodemographic information include age, sex, religion, occupation, educational status, monthly family income. Participants were asked to answer all the questions anonymously. Data analysis were done by using scientific calculator after entering in a master sheet. Quantitative variables were analyzed by mean and qualitative variables were summarized by percentage.

Results:

The effectiveness of intranasal steroids spray on allergic rhinitis was studied among of 155 patients of allergic rhinitis. Majority 91(58.71%) of the participants were female where most of the study population were in the age group 25-35 years.

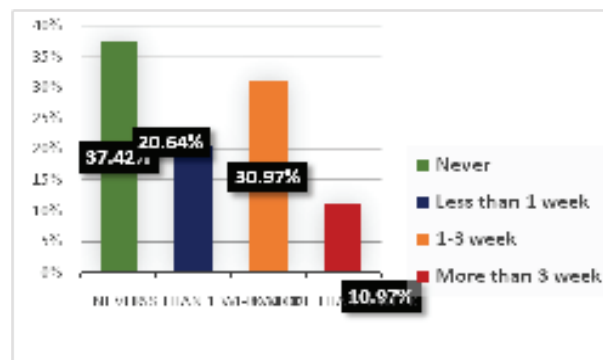


Fig-1: frequency of the patients forgotten to use INS spray. Chart-1 Represents the frequency of patients forgot to use their intranasal steroid spray. Only 58(37.42%) patients reported that they do not forgot to use their intranasal steroid spray at least once within the last 6 months, 30.97% reported that they forgot to use their INS spray for 1-3 weeks followed by 20.64% cases less than 1 week and 10.97% cases more than 3 weeks within the last 6 months.

Table I: Frequency distribution of the benefits noticed after using INS spray (n=155)

Symptoms	Effectiveness
Better airway*	122 (78.71%)
Less itching*	55 (35.48%)
Less nasal discharge*	119 (76.77%)
Less impairment of smell*	33 (21.29%)
No benefit	27 (17.42%)

* Multiple responses present

Table-1 shows varying degrees of outcome observed after using intranasal steroid spray. 122 (78.71%) & 119 (76.77%) patients reported about better airway and less nasal discharge respectively, less itching 55(35.48%), less impairment of smell 33(21.29%) while no benefit was found among 27 (17.42%) cases.

Table II: Side effects experienced by patients using INS spray (n=155)*

Side effects	N (%)
Rebound effect	21 (13.55%)
Dependency	35 (22.58%)
Dryness of nose, throat, mouth	41 (26.45%)
Headache	16 (10.32%)
Epistaxis	2 (1.29%)
Nausea	13 (8.39%)
Moodiness	11 (7.10%)

* Multiple responses present

Table - II demonstrates the side effects experienced by patients using intranasal steroids. These include in descending order of frequency, dryness of nose, throat, mouth 41(26.45%), become dependent 35(22.58%), rebound effect 21(13.55%) after stopping the use of intranasal steroid sprays, headache 16(10.32%), nausea 13(8.39%), moodiness 11(7.10%) , epistaxis 2(1.29%) cases.

Discussion:

Intranasal steroids seem more effective in real-world practice as topical administration of corticosteroids can reduce the total dose of corticosteroid required to treat patients and minimize side effects. In our study, we found that the majority of the participants were female 91(58.71%) which is almost similar to another studies where 64%⁸ and 60%⁹ respondents were female.

Our study revealed that 97(62.58%) patients had forgotten to use their intranasal spray at least once within last 6 months which is similar to another study where 63.1% respondents reported having forgotten to use their intranasal steroid to various degrees over a 30-day period of once-daily dose regime⁷. Regarding benefits noticed after using INS, more than half of the respondents of 78.71% patients feels better airway & 76.77% patients improved from nasal discharge which is inconsistent with another study where only 40% and 6% patients reported better airway and less nasal discharge respectively². 17.42% of our cases stated that they took intranasal sprays but experienced no benefit which shows almost similar figure to that study by Scadding et. al. (20%)².

The most common side effects experienced by patients on intranasal steroid in our study were (26.45%) followed by (22.58%). Another study in Singapore reported that 20% and 23.1% patients experienced Dryness of nose, throat, mouth and Dependency respectively as side effects INS spray³. Only 2 (1.29%) patients reported epistaxis as a side effect which is lower than the study in Singapore (7.7%)⁷ and UK (9%)². Epistaxis, or nosebleeds, can occur due to factors such as the drying and thinning of the nasal mucosa or direct physical trauma caused by the tip of the plastic nozzle pressing against the septum or the anterior end of the inferior turbinate. Though 17.42% get no benefit at all, 82.58% of patients still found intranasal steroid effective despite all the above types of missing dose, effectiveness and side effects.

Conclusion: From this study we can say that, despite some considerable side effects, effectiveness of intranasal steroid spray (fluticasone furoate) gives better result in allergic rhinitis.

Limitations: It is a single centered study which does not reflect a mass effects of INS. It should be multicentered study with various region with huge population which may reflect the actual effects of INS.

Conflict of interest: Authors declared no conflict of interest.

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