

Comparison of Outcomes Between Mometasone Furoate Intranasal Spray and Oral Montelukast in Patients with Allergic Rhinitis

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ABSTRACT

Background: Allergic rhinitis is a common ailment with rising trend and worldwide prevalence of some 400 million.

Methods: This prospective randomized cross-sectional study was done at the Department of Otorhinolaryngology and Head and Neck Surgery, Tribhuvan University, Teaching Hospital, Kathmandu, Nepal from June 2016 to August 2017. They were randomly assigned to two groups by lottery method. Group A received mometasone furoate intranasal spray and Group B received oral montelukast for a total duration of one month. Prior to starting medication and one month after medications, total nasal symptom score was documented. Statistical analysis was done using SPSS version 18.

Results: Total of 126 patients between 16 to 52 years were enrolled in the study. The mean duration of symptoms was 3.93 years. The mean value of serum total IgE was 833.49 IU/ml. The mean pre and post medication score for mometasone furoate intranasal spray group was 16.32 and 5.44 respectively, which was significant. Similarly, the mean pre and post medication score for oral montelukast group was 15.24 and 7.87 respectively which was also found to be significant. Comparing the means of scores for both the groups, mometasone furoate was found to be more effective than oral montelukast.

Conclusions: Both mometasone furoate intranasal spray and oral montelukast were effective in the treatment of patient with allergic rhinitis. Oral montelukast can therefore be used as a first line treatment for patients with allergic rhinitis.

Keywords: Allergic rhinitis; mometasone furoate intranasal spray; montelukast; serum total IgE; total nasal symptom score.

INTRODUCTION

Rhinitis is defined clinically when two or more of nasal symptoms like running, blockage, itching and sneezing are present. Allergic rhinitis (AR) is present when symptoms of rhinitis are caused as a result of IgE mediated inflammation following exposure to aeroallergens.¹ As per the ARIA guidelines, it can be classified as being intermittent or persistent and may be further classified as being mild, moderate or severe. Pharmacotherapy, one of the modality of treatment for AR includes intranasal corticosteroid, antihistamines, decongestant and antileukotriene. Other modalities are avoidance of allergen and immunotherapy, both of which requires compliance.² Intranasal corticosteroids (INS) are recommended as first-line therapy for allergic rhinitis in patients with moderate-to-severe symptoms.

Commonly used ones are fluticasone furoate, beclomethasone, fluticasone propionate, mometasone furoate.³ Oral Montelukast is a selective and orally active leukotriene receptor antagonist that inhibits the cysteinyl leukotriene (CysLT₁) receptor.⁴ Our objective was to compare the effectiveness of oral montelukast with mometasone furoate intranasal spray.

METHODS

This was prospective randomised cross-sectional study done in the outpatient department of the ENT-HNS Department of Ganesh Man Singh Memorial Academy of Teaching Hospital in Maharajgunj from March 2017 to August 2017. Ethical clearance was obtained from the Ethical review committee of the hospital. One hundred and twenty-six patients were enrolled in the study. Patients were selected on an outpatient basis based on

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the history and symptoms of allergic rhinitis. Patients aged above 15 onwards were included in the study. Total serum IgE measuring ≥ 100 IU/ml was used as a marker of allergy. Patient under 15 and pregnant women were excluded from the study. Prior to use of medication, patients were required to fill a total nasal symptom score(TNSS) form which was translated in Nepali. Randomisation was done by lottery method. Group A patient received mometasone furoate intranasal spray and group B patient received oral montelukast tablets. Both medication was used for a duration of one month. After one month, patients were required to fill another post-treatment TNSS form. Statistical analysis was done using SPSS version 18 and paired t-test was used to analyze the data.

RESULTS

Total 126 patients were enrolled in the study, 63 patients in each group , 64 (50.8%) male and 62 (49.2%) female. The minimum age was 16 years and maximum age was 52 years. The mean duration of symptoms for both groups were 3.93 years. Twenty-eight patients had history of use of medications to relieve the symptoms of allergic rhinitis. Various medication used included antihistamines , ayurvedic medication , intranasal steroid spray, decongestant nasal drops and few patients were treated in the line of asthma. The remaining patients had no prior history of medication. Positive family history of allergic rhinitis in first degree relative was found to be 4.76%(N=6). The mean value of total serum IgE was 833.49 IU/ml.

The pre and post medication TNSS were measured and analyzed using paired t-test. The result for both the groups can be summarized as below (Table 1).

Table 1. Comparison of pre and post medication TNSS for both Group A and Group B.

Group	Score	Number of patients (N)	Mean \pm SD	Paired t-test (P-value)
Oral Montelukast	Pre-medication TNSS	63	15.24 \pm 5.275	0.026
	Post-Medication TNSS	63	7.81 \pm 5.869	
Mometasone furoate intranasal spray	Pre-medication TNSS	63	16.32 \pm 6.498	0.01
	Post-Medication TNSS	63	5.44 \pm 4.358	

The means of TNSS pre and post medication in both

the group was measured using independent t-test. The result can be shown below (Table 2).

Table 2. Comparison of means of pre and post medication TNSS for both Group A and Group B.

TNSS	Group	Mean \pm SD	P- value
Premedication	MFNS	16.32 \pm 6.498	0.308
	Oral montelukast	15.24 \pm 5.275	
Postmedication	MFNS	5.44 \pm 4.358	0.01
	Oral montelukast	7.87 \pm 5.897	

DISCUSSIONS

Allergic rhinitis is a common allergic disease. Intranasal steroids have long been used as a preferred choice of treatment for relieving the symptoms of allergic rhinitis. However recently , the concept of “one airway, one disease” is being recognized where common pathophysiology has been recognized in allergic rhinitis and asthma.⁵ This favours the use of oral montelukast , a leukotriene receptor antagonist used prophylactically for allergic asthma which has been increasingly used to treat allergic rhinitis.⁶ Patel et al in his randomized, double-blind, placebo controlled study of montelukast for treatment of patients with persistent allergic rhinitis aged between 15 to 85 years found that montelukast significantly improved day time nasal symptoms (nasal congestion, rhinorrhea, sneezing) when used for a duration of 6 weeks when compared with placebo. Nasal congestion which is a bothersome symptom of AR was found to be significantly relieved more than other symptoms and night time symptoms of sleep disturbance was also reduced significantly. Leukotrienes are implicated as a primary mediator of nasal congestion. Hence anti-leukotriene medication tend to relieve nasal blockage better than other symptoms.⁷ Gawchik et al. in her randomized-controlled, double blind study of 235 patients using either mometasone furoate nasal spray or placebo found that mometasone furoate significantly reduced the baseline TNSS when used for a duration of 15 days. Wilson et al⁸ compared mometasone furoate intranasal spray (200mcg) with montelukast and cetirizine in patients with seasonal AR in a cross over study of 15 days. They found that both the treatment group had significant (>50%) reduction in total nasal symptom score when compared to placebo which was given during the cross over period. They suggested that montelukast combined with cetirizine was as effective as mometasone furoate. In our study, however we have compared mometasone furoate intranasal spray with oral montelukast as a monotherapy only and found that montelukast as a monotherapy also significantly reduces the TNSS in allergic rhinitis patients as compared to

mometasone furoate intranasal spray group. ARIA guidelines(5) 2016 revision suggests that leukotriene antagonists can be used as a monotherapy for treatment of seasonal AR. In our study, monotherapy with montelukast was found to be effective in management of patients with AR. Mometasone furoate intranasal spray in comparison was better but there was still significant decrease in TNSS and individual symptoms in patients treated with oral montelukast.

CONCLUSIONS

Both mometasone furoate intranasal spray and oral montelukast are effective decreasing the TNSS significantly in patients with allergic rhinitis. But mometasone furoate is more effective in controlling the nasal symptoms in allergic rhinitis patients when compared to oral montelukast. From our study, oral montelukast can be used as a monotherapy for the treatment of allergic rhinitis.

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