

# Comparison of efficacy of fluticasone propionate and mometasone furoate in the treatment of allergic rhinitis

R K Sivakami<sup>1\*</sup>, K Priya<sup>2</sup>, P Thirunavukarasu<sup>3</sup>, S B Jothiramalingam<sup>4</sup>, P Preethi<sup>5</sup>, S Prabakaran<sup>6</sup>  
R B Namasivaya Navin<sup>7</sup>, Venkata Kasyapi<sup>8</sup>

<sup>1,7,8</sup>PG Student, <sup>2</sup>Associate Professor, <sup>3</sup>Professor, <sup>4</sup>Professor and HOD, <sup>5</sup>Assistant Professor, <sup>6</sup>Sr. Resident, Department of ENT Chettinad Hospital and Research Institute, Kanchipuram Dist., Kelambakkam, Tamil Nadu, INDIA.

Email: [dr.sivakami26@gmail.com](mailto:dr.sivakami26@gmail.com)

## Abstract

**Objectives:** To compare the efficacy of Fluticasone Propionate and Mometasone furoate in Allergic rhinitis and Based on the results to appraise possible better outcomes in the treatment of Allergic Rhinitis.


**Key Words:** fluticasone propionate, mometasone furoate.

### \*Address for Correspondence:

Dr. R K Sivakami PG Student, Department of ENT, Chettinad Hospital and Research Institute, Kanchipuram Dist., Kelambakkam, TAMIL NADU 603103 INDIA.

Email: [dr.sivakami26@gmail.com](mailto:dr.sivakami26@gmail.com)

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## INTRODUCTION

Allergic rhinitis is a global health problem with increasing prevalence. The increasing prevalence of allergic rhinitis is observed especially in the low and middle income countries.<sup>1</sup> Allergic rhinitis (AR) is a heterogeneous disorder characterized by one or more symptoms including sneezing, itching, nasal congestion, and rhinorrhea. Causative agents include pollens, molds, dust mites<sup>2</sup>. The American Academy of Allergy, Asthma, and Immunology and the American College of Allergy, Asthma, and Immunology recommend intranasal corticosteroid (INS) to be used as first-line treatment for allergic rhinitis<sup>2</sup>. Currently available topical steroids are beclomethasone dipropionate, budesonide, and flunisolide and the newer intranasal steroids known as the second-

generation intranasal steroids triamcinolone acetonide nasal spray, fluticasone propionate, mometasone furoate, and fluticasone furoate. The main advantage of using second-generation intranasal steroids are that it has less systemic bioavailability, less side effects (occasionally nasal irritation and epistaxis) and binds more potently to corticosteroid receptor. This study is performed to compare the efficacy of Mometasone furoate and Fluticasone propionate by subjective means using documentation of the severity of nasal symptoms.

## MATERIALS AND METHODS

It was an 8 week randomized controlled study conducted in 100 patients to compare the efficacy of Fluticasone Propionate and Mometasone furoate in Allergic rhinitis. It was conducted in the Department of Otorhinolaryngology, Chettinad Hospital and Research Institute over a period of one year. Ethics committee approval was obtained.

### Inclusion Criteria

All patients with symptoms and signs of Allergic Rhinitis. All patients above 18 years irrespective of sex.

### Exclusion Criteria

Pregnant women; Paediatric Allergic rhinitis; Those who were using Intra nasal or oral steroids for 4 weeks before the baseline period; Smokers

## RESULTS

Out of the 100 subjects studied, 54 were male and 46 were females (Figure and Table 1). These 100 patients were divided into two groups, those on Mometasone furoate or Fluticasone propionate group. Maximum number of patients in the study group was between 31-40yrs of age in both the groups (Figure and Table 2). Majority of the patients with allergic rhinitis presented with sneezing (99%) Figure and Table 3 and rhinorrhea (98%) Figure and Table 4. The other common complaints were nasal block (58%) Figure and Table 5. Eye symptoms such as watering of eyes, itching and redness of eye (38%) Figure and Table 6.

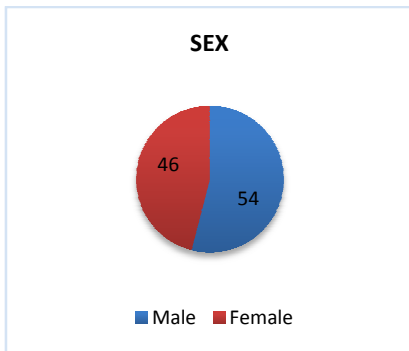


Figure 1: Sex distribution of Allergic rhinitis in the study population

Table 1: Sex distribution of Allergic rhinitis in the study population

	N	%
Sex		
Male	54	54.00
Female	46	46.00

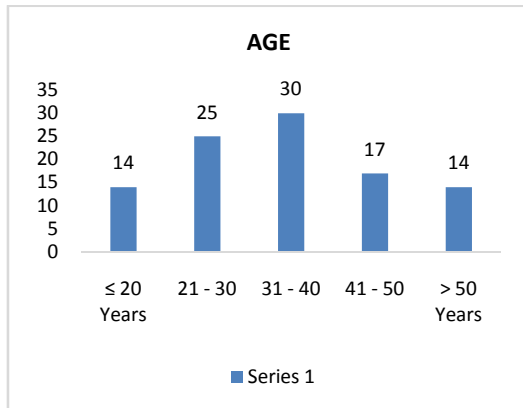


Figure 2: Age wise distribution of Allergic rhinitis in the study population

Table 2: Age wise distribution of Allergic rhinitis in the study population

	n	%
Age		
≤ 20 Years	14	14.00
21 - 30	25	25.00
31 - 40	30	30.00
41 - 50	17	17.00
> 50 Years	14	14.00

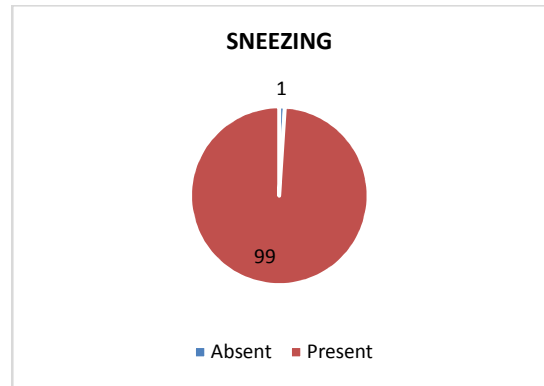


Figure 3: Distribution of sneezing in the study population

Table 3: Distribution of sneezing in the study population

	n	%
Sneezing		
Absent	1	1.00
Present	99	99.00

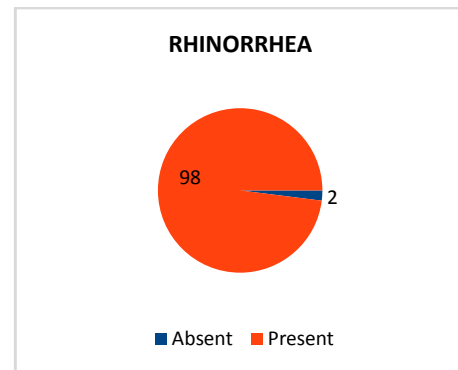


Figure 4: Distribution of rhinorrhoea in study population

Table 4: Distribution of rhinorrhoea in study population

	n	%
Rhinorrhoea		
Absent	2	2.00
Present	98	98.00

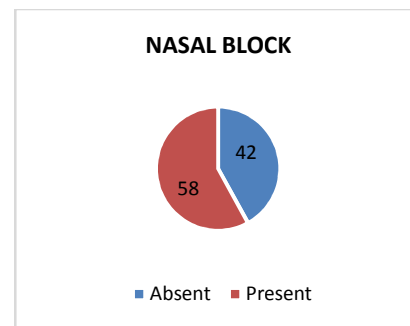


Figure 5: Distribution of nasal block in study population

Table 5: Distribution of nasal block in study population

	n	%
Nasal Block		
Absent	42	42.00
Present	58	58.00

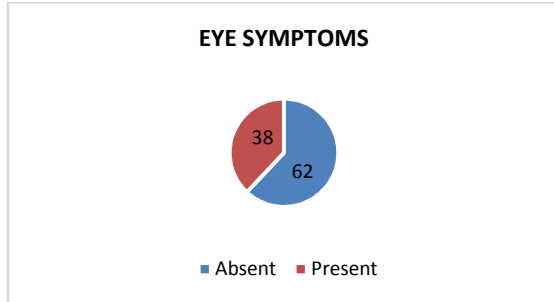


Figure 6: Distribution of eye symptoms in study population

Table 6: Distribution of eye symptoms in study population

	N	%	
Eye Symptoms	Absent	62	62.00
	Present	38	38.00

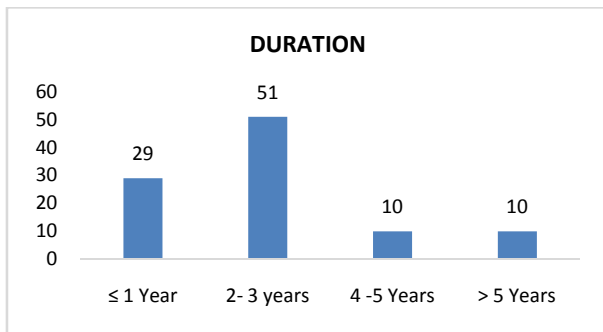


Figure 7: Duration of symptoms in study population

Table 7: duration of symptoms in study population

	N	%	
Duration	≤ 1 Year	29	29.00
	2-3 years	51	51.00
	4-5 Years	10	10.00
	> 5 Years	10	10.00

Majority of the patients in the current study group presented between 2-3years(51%) (Figure and Table 7).

Table 8: Distribution of steroid nasal spray and antihistamines in study population

	n	%	
Steroid Nasal Spray	Fluticasone propionate	50	50.00
	Mometasone furoate	50	50.00
Anti Histamine	Single drug levocetrizine	36	36.00
	Combination (levocetrizine + Montelukast)	61	61.00
	No	3	3.00

The mean baseline nasal symptom score for Mometasone furoate was 10.08 as compared to Fluticasone propionate 10.78 at 1<sup>st</sup> visit. Comparison of these values by independent sample t test was found to be significant. The

mean non-nasal symptom score was 4.62 in both the groups and evaluation by independent sample t-test found no significance (Table 9).

Table 9: Comparison of nasal symptom scores in the two groups at each visit

	Steroid Nasal Spray				Independent Sample t-test	
	Fluticasone propionate		Mometasone furoate		t-value	Sig.
	Mean	SD	Mean	SD		
NS - 1st Visit	10.78	1.59	10.08	1.95	1.967	.052
NS - 2nd Week	6.60	1.93	6.54	1.96	.154	.878
NS - 4th Week	4.02	2.14	4.04	1.86	-.050	.960
NS - 8th Week	2.24	1.64	2.46	1.64	-.671	.504

Table 10: Comparison of non-nasal symptom scores in the two groups at each visit

	Steroid Nasal Spray				Independent Samples t-test	
	Fluticasone propionate		Mometasone furoate		t-Value	Sig.
	Mean	SD	Mean	SD		
NNS - 1st Visit	4.62	1.99	4.62	2.34	.000	1.000
NNS - 2nd Week	1.94	1.08	2.10	1.34	-.657	.513
NNS - 4th Week	.70	.79	1.02	1.15	-1.621	.109
NNS - 8th Week	.44	.70	.66	.72	-1.547	.125

On comparison of mean baseline nasal and non-nasal symptom score for the two groups at the consequent visits at 2<sup>nd</sup>, 4<sup>th</sup> and 8<sup>th</sup> week was not significant, but there was drastic symptomatic improvement in both the groups. An addition of antihistamine to the steroid nasal spray showed a significant improvement in symptoms. However, the effects were similar in both the groups and there was no significance on comparison. Hence, it is understood from the above data that Mometasone furoate and Fluticasone propionate are equally effective in the treatment of allergic rhinitis (Table 10).

## DISCUSSION

Intranasal corticosteroids are proven to be the most effective and safe medication for the treatment of allergic rhinitis<sup>3</sup>. First line treatment of seasonal and perennial allergic rhinitis is intranasal corticosteroids as per current guidelines. In a study conducted by Mandl *et al* in 1997 among 597 patients concluded that Mometasone furoate and Fluticasone propionate were equally effective in controlling the nasal complaints in patients suffering from perennial rhinitis and all the patients well tolerated both the nasal sprays<sup>4</sup>. In a study conducted by Prem Prakash Gupta *et al* in 75 patients suggested that use of Mometasone furoate and Fluticasone propionate was highly effective in perennial allergic rhinitis. The clinical efficacy in both the groups was not statistically significant at 4<sup>th</sup> and 8<sup>th</sup> week. However, the efficacy on the whole in both the groups was similar.<sup>5</sup> The overall effectiveness of Mometasone was analysed in a study and they suggested that the overall daytime and night time

cough along with the nasal symptoms reduced significantly.<sup>6</sup> However, some investigators noted a few side effects of this drug such as upper respiratory tract infections and headache.<sup>7</sup> Though there were many studies to compare the therapeutic efficacy of various intranasal steroids, not much studies are available on the comparative efficacies of each of these nasal sprays.<sup>5</sup> In a study conducted by Austin *et al* in 2002, he suggested that both Mometasone furoate and Fluticasone were indistinguishable in their effects on glucocorticoid receptor in terms of potency of trans repression and gene activation. However, Mometasone was less specific for glucocorticoid receptor as compared to Fluticasone.<sup>8</sup> In a meta-analysis conducted by Bielory *et al* showed not only a significant improvement in nasal complaints but also ocular symptoms improved symptomatically in patients with both perennial and seasonal allergic rhinitis.<sup>9</sup> A similar study conducted by Maspero *et al* on the impact of Fluticasone in control of nasal and ocular symptoms showed a significant improvement in symptoms.<sup>10</sup>

## CONCLUSION

Based on the above analysis, it is seen that intranasal steroids are effective in control of nasal and non-nasal symptoms of allergic rhinitis. Overall, in our study Mometasone furoate and Fluticasone propionate showed a subjective change which was similar in both the groups. Hence, both the nasal sprays can be used alone as a first line of treatment in patients suffering from allergic rhinitis.

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