



ORIGINAL RESEARCH PAPER

Otorhinolaryngology

TO ASSES THE EFFICACY OF MOMETASONE AND HYDROXYPROPYLMETHYLCELLULOSE NASAL SPRAY TO CONTROL SYMPTOMS OF ALLERGIC RHINITIS: A COMPARATIVE STUDY .

KEY WORDS:

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ABSTRACT

Allergic rhinitis is very common disorder. It significantly effects patient's daily life. So many drugs are in use for the control of symptoms of allergic rhinitis. Steroid nasal spray was the mainstay of topical medicine for long. HPMC powder nasal sprays not so old medication used now a days. In our study we try to find out the effectiveness of mometasone and HPMC powder nasal spray to control the symptoms of allergic rhinitis. In each group we had 60 nos of patient receiving the medication as stated. Evaluation was done at 14th days and 28th days of starting the drugs. At day 14th The chi-square statistic was 1.8682. The p value was 0.602. The result was not significant as p more than 0.5. there was same response for both drugs at 14th day of starting treatment. At day 28th The chi-square statistic was 14.8428. The p value was 0.005039. The result was significant as p less than 0.5. there was same response for both drugs at 28th day of starting treatment. There was more relief of major symptoms and complete relief of symptoms with HPMC powder nasal spray at 28th day of treatment. The value of z (two proportion test) is -3.7158 . The value of p is 0.0001. There was minimal side effects for both drugs. only 7 nos of patients said that three times daily dosage of HPMC is not convenient

INTRODUCTION

Allergic rhinitis is defined clinically by combination of two or more nasal symptoms like running nose, blocked nose , sneezing and itching⁽¹⁾. The prevalence of seasonal allergic or perennial rhinitis is increasing and it is estimated that 10%-30% of population suffer from the disease. The prevalence of allergic rhinitis has become two to three times within the past 15 years^(2,3). Allergic rhinitis has been classified by ARIA (Allergic Rhinitis and its Impact on Asthma) as Mild- normal sleep, normal daily activities, normal work and school, no troublesome symptoms. Moderate to Severe - abnormal sleep, impairment of daily activities, problems caused at school or work, troublesome symptoms⁽⁴⁾. The treatment of allergic rhinitis includes first the lack of exposure to allergen and second pharmacological treatment⁽⁵⁾. Hydroxypropylmethyl cellulose nasal spray has appeared in the European market since 1994. It includes a covering device and Hydroxypropylmethylcellulose powder. And when the later meets water vapor on the mucosa, it forms gel and prevents allergen particles in the air from entering mucous membrane^(6,7). There are bulk of studies on effect of corticosteroid nasal spray on pituitary-adrenal axis and most of them have shown little or no impact on pituitary-adrenal axis^(8,9). Although corticosteroid nasal sprays except beclomethasone have good safety profile⁽⁹⁾.

Hydroxypropylmethylcellulose powder has a natural origin and locally placed on the mucosa and does not have precaution and contraindication in children older than 18 months and also in pregnant and lactating women^(7,10). For this reason in this study we will compare the efficacy of Hydroxypropylmethylcellulose powder nasal spray with mometasone nasal spray to control the symptoms of allergic rhinitis.

REVIEW OF LITERATURE

- Nafieseh Sadat Mahmodi⁽¹¹⁾ et al during May 2016 in Iran conducted one study to know the comparison of Nasaleze and mometasone nasal spray to control the symptoms of allergic rhinitis and they found that nasalize was atleast as

effective as mometasone nasal spray on treatment and decrease of the allergic rhinitis symptoms .

- Haiyun Shi⁽¹²⁾ et al during February 2017 conducted one study in China on clinical evaluation of nasalize nasal spray on the effect of allergic rhinitis and they found that nasalize nasal spray was applied to the patients with allergic rhinitis , it can effectively reduced the application amount of nasal spray hormone and there was no obviously adverse reactions.
- Borah Tinku Moni⁽¹³⁾ in August 2018 conducted one study in India and the topic was a comparative study to assess the efficacy of hydroxypropylmethylcellulose powder over steroid spray in treatment of allergic rhinitis in the department of Ent and Head & Neck Surgery , Silchar Medical College & Hospital and found that significantly higher efficacies of hydroxypropylmethylcellulose powder over its steroidal counterpart.
- Emberlin JC and Lewis RA⁽⁷⁾ conducted one study in 2007 and found that the inert cellulose powder can have significant effects in reducing some symptoms of persistent rhinitis due to house dust mite allergy. There were no adverse reactions.
- Dibildox J⁽¹⁴⁾ conducted one study in mexico in the year 2001 and found that intranasal mometasone furoate had been found to be safe and effective therapy for the treatment of allergic rhinitis and there were no signs of nasal atrophy.

AIM AND OBJECTIVE:

To compare Mometasone nasal spray and Hydroxypropylmethylcellulose powder nasal spray in terms of control the symptoms of allergic rhinitis and compliance.

MATERIALS AND METHOD

STUDYTYPE- Prospective study.

STUDY DURATION- 06 Months (From January 2020 to June 2020)

STUDY AREA- Department of ENT, TMC & Dr. BRAM teaching

hospital, Hapania, Agartala, West Tripura, PIN-799014.

STUDY POPULATION- Patients attending to OPD of ENT department, TMC & Dr. BRAM Teaching Hospital with symptoms of allergic rhinitis.

INCLUSION CRITERIA

All Patients of age group 12-60 years with symptoms of allergic rhinitis and confirmed by physical examination by otorhinolaryngologist attending ENT department of TMC & DR.BRAM Teaching hospital and was in need of medical treatment and gave consent to participate in the study.

EXCLUSION CRITERIA

- I. Age less than 12 years and more than 60 years
- II. Patients with bronchial asthma.
- III. Patients who had used corticosteroid or antihistaminic in any mode one month before the study.
- IV. Patients who had taken nasal spray of cromolyn sodium within 15 days before study.
- V. Patient who is not willing to give consent.

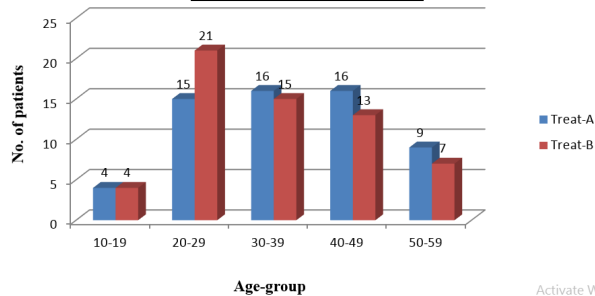
SAMPLING TECHNIQUE- Non-random convenience method.

SAMPLE SIZE- All patient attending OPD of ENT department, TMC & Dr. BRAM Teaching Hospital and fulfilling the inclusion criteria and giving the consent during this study period were included in this study. By this we got 60 nos of patient in each group.

Sex-wise Distribution of Patients Receiving Treatments:-

Treatments	A	B	Grand Total
Female	26	27	53
Male	34	33	67
Grand Total	60	60	120

Column Graph of No. of Patients receiving treatments according to different Age-groups



Column Graph of No. of Patients receiving treatments according to different Age-groups

STUDY TOOLS AND TECHNIQUE- Diagnosis of allergic rhinitis was done based on clinical signs (sudden attacks of sneezing , runny nose , nasal congestion , itchy nose , cough , postnasal drip) and physical examination by us. The study subject was divided into two groups. One group was given MOMETASONE (MOMETASNE FOURATE) NASAL SPRAY 100mcg , 1 puff in each nostril once daily for 28 days . Other group was given HYDROXYPROPYLMETHYLCELLULOSE (HPMC) NASAL SPRAY , 1 puff in each nostril thrice daily for 4 weeks. Follow-up was done at 14th days and 28th day of the starting of treatment. The results were assessed by relieved of symptoms on a 5 point scale⁽³⁾.

- 1- Allergic rhinitis with no relief of symptoms.
- 2- Allergic rhinitis with apparent relief of symptoms with periodic flare ups.
- 3- Mild relief of symptoms.
- 4- Relief of major symptoms(nasal obstruction, sneezing, running nose).
- 5- Complete relief of symptoms.

STATISTICAL ANALYSIS-

Data collected was entered in Microsoft excel and analyzed by SPSS version 19.0 software with suitable statistical tests. P value less than 0.05 would be considered significant.

RESULTS-

We got 60 nos of patients in each group. In group A that is patients received mometasone nasal spray 26 nos were female. In group B , that is patients received HPMC powder nasal spray 27 nos were female.

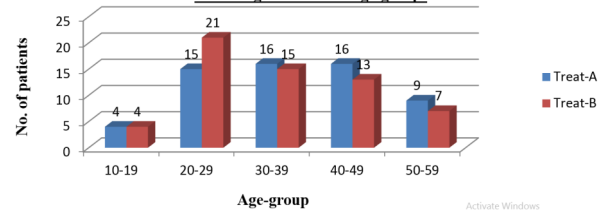
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We also found that maximum numbers of patients were in 20-29 and 30-39 age group in both groups.

Column Graph of No. of Patients receiving treatments according to different Age-groups



When we had started our treatment all patients was symptomtomatic. At day 14th we found that there was similar response for the both groups.

Patients Outcome on 14th days:-

Treatments	1	2	3	4	Grand Total
A	2	19	16	23	60
B	3	17	22	18	60
Grand Total	5	36	38	41	120

Null hypothesis: There was same response between Treat-A & Treat-B in terms of Patients Symptoms on 14th days.

Alternative hypothesis: There was difference response between Treat-A & Treat-B in terms of Patients Symptoms on 14th days.

Symptoms	1	2	3	4	Row Totals
A	2(2.50) [0.10]	19(18.00) [0.06]	16(19.00) [0.47]	23(20.50) [0.30]	60
B	3(2.50) [0.10]	17(18.00) [0.06]	22(19.00) [0.47]	18(20.50) [0.30]	60
Column Totals	5	36	38	41	120

The chi-square statistic was 1.8682. The p-value was .6002. The result was not significant as p was more than .05.

Conclusion:- There were Same response between Treat-A & Treat-B in terms of Patients Symptoms on 14th days.

At day 28th we found that there was improved clinical outcome in terms of relief from symptoms for the group B.

Patients Outcome on 28th days:-

Treatments	1	2	3	4	5	Grand Total
A	5	5	15	13	22	60
B	1	1	5	25	28	60
Grand Total	6	6	20	38	50	120

Null hypothesis: There was same response between Treat-A & Treat-B in terms of Patients Symptoms on 28th days.

Alternative hypothesis: There was difference response between Treat-A & Treat-B in terms of Patients Symptoms on 28th days.

	1	2	3	4	5	Row Totals
A	5 (3.00) [1.33]	5 (3.00) [1.33]	15(10.00) [2.50]	13(19.00) [1.89]	22(25.00) [0.36]	60
B	1(3.00) [1.33]	1(3.00) [1.33]	5(10.00) [2.50]	25(19.00) [1.89]	28(25.00) [0.36]	60
Column Totals	6	6	20	38	50	120

The chi-square statistic was 14.8428. The p-value was 0 .005039. The result was significant as p was less than .05.

There was difference response between Treat-A & Treat-B in terms of relieved of Patient's Symptoms on 28th days.

Null Hypothesis:- There was same Relief of Major Symptoms & Complete Relief of Symptoms for Treatment-A & Treatment-B on 28 Days

Alternative Hypothesis:- There was more Relief of Major Symptoms & Complete Relief of Symptoms for Treatment-B than Treatment-A on 28 Days.

The value of z (two-sample Proportion test) is -3.7158. The value of p is .0001. The result is significant at p < .05.

Conclusion:- There was more Relief of Major Symptoms & Complete Relief of Symptoms for Treatment-B than Treatment-A on 28 Days.

DISCUSSION-

In this study we found that HPMC powder nasal spray is better in comparison to mometasone nasal spray after 28 day of treatment . No serious side effects we found in any of these drugs in our study . Dosage of Mometasone is convenient for the patient as it is once daily use. On the other hand we use HPMC nasal spray three times daily .07 nos of patients felt that three times daily dose is difficult to maintain. 7 patients of group A and 13 patients of group B were complained of nasal irritation and sometimes throat irritation also but it usually subsides after 15-20 mins.

Nafieseh Sadat Mahmodi ⁽¹¹⁾ et al also found that Nasaleze and mometasone nasal spray to control the symptoms of allergic rhinitis and they found that nasalize was atleast as effective as mometasone nasal spray on treatment and decrease of the allergic rhinitis symptoms .

So many other studies all over the world , we found similar efficacy and side effects with HPMC nasal spray. Due its natural origin and lack of systemic absorption , it is very good options for children , pregnant woman and lactation mother.

CONCLUSION-

Both Mometasone and HPMC nasal spray were effective in controlling the symptoms of allergic rhinitis. HPMC nasal spray was found to be more effective in comparison to Mometasone, on day 28th of treatment in this study . Considering all these we can consider HPMC powder for the treatment of allergic rhinitis. Due to its safety profile it can be used in pregnancy , lactation , children and patients having steroid phobia.

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