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Original Research Article.

Comparative Evaluation of Cetirizine and Ebastine in Perennial Allergic Rhinitis: An Institutional Based Study

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ABSTRACT

Background: Diagnosing perennial allergic rhinitis (PAR) can be challenging, especially when patients exhibit secondary symptoms like sinusitis and persistent nasal congestion. This study compares the effectiveness of two second-generation antihistamines, cetirizine and ebastine, in managing PAR, as both are widely used globally for allergic rhinitis and urticaria.

Materials & Methods: The study consisted of 40 participants, aged 20-50, randomly divided into two groups: Cetirizine and Ebastine. Inclusion criteria included a history of perennial allergic rhinitis, positive skin test, and symptom score ≥6. Participants tracked nasal symptoms daily using a 0-3 severity scale. After 4 weeks, clinicians assessed the participants' conditions.

Results: Mean age of the patients of cetirizine group and Ebastine group was 35.1 years and 33.9 years. There were 13 males and 7 females in cetirizine group and 12 males and 8 females in ebastine group. Mean duration of rhinitis was 5.9 years and 6.4 years respectively. Mean percentage decrease in TSS among cetirizine group and ebastine group was 46.9 percent and 32.7 percent respectively (p-value < 0.05).

Conclusion: Significant better results were obtained among patients treated with cetirizine.

Key words: Cetirizine, Ebastine, Perennial Allergic Rhinitis.

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INTRODUCTION

Perennial rhinitis is clinically characterized as an inflammatory disorder of the nasal passages, marked by symptoms such as nasal obstruction, sneezing, itching, and rhinorrhea, which persist for at least one hour on the majority of days throughout the year. Management of rhinitis typically involves both primary care and secondary care physicians.[1, 2]

Diagnosing perennial allergic rhinitis can pose greater challenges compared to seasonal allergies, especially when patients exhibit secondary symptoms such as sinusitis and a persistent nasal condition resembling a "permanent cold." The primary allergen associated with perennial allergy symptoms is the house dust mite. Additionally, common triggers include various animals, notably cats, dogs, and horses. In certain regions, allergens typically associated with specific seasons may actually be present throughout the year.[3, 4]

Current guidelines advise against the availability of first-generation H1 antihistamines as over-the-counter medications for self-treatment of allergic conditions or other ailments, and they should not be utilized for the management of allergic rhinitis (AR). Cetirizine, also an early second-generation antihistamine, remains widely prescribed globally for the management of AR and urticaria.[5,6]

Ebastine, classified as a second-generation antihistamine, has demonstrated efficacy in the management of both seasonal and perennial allergic rhinitis.[7, 8]

Hence; the present study was conducted for assessing and comparing results of cetirizine and ebastine in patients with perennial allergic rhinitis.

MATERIALS & METHODS

The present study was conducted in the Department of Otorhinolaryngology, Index Medical College, Hospital & Research Centre, Indore, Madhya Pradesh (India) for assessing and comparing results of cetirizine and ebastine in patients with perennial allergic rhinitis.

A total of 40 individuals participated in the study, all of whom were aged between 20 and 50 years. The participants were randomly assigned to one of two groups: the Cetirizine group and the Ebastine group. Inclusion criteria for the study included a documented history of perennial allergic rhinitis, a positive skin

test for perennial allergens, and a minimum rhinitis symptom score of 6 out of 12. Participants recorded the severity of their nasal symptoms daily on diary cards, utilizing a rating scale ranging from 0 (none) to 3 (severe). After a treatment period of four weeks, clinicians conducted a comprehensive evaluation of the participants' conditions. All the results were recorded in Microsoft excel sheet and were subjected to statistical analysis using SPSS software.

RESULTS

The mean age of the patients of cetirizine group and Ebastine group was 35.1 years and 33.9 years. There were 13 males and 7 females in cetirizine group and 12 males and 8 females in ebastine group. Mean duration of rhinitis was 5.9 years and 6.4 years respectively. Mean percentage decrease in TSS among cetirizine group and ebastine group was 46.9 percent and 32.7 percent respectively (p-value < 0.05).

Table 1: Demographic data

Variable	Cetirizine group	Ebastine group
Mean age (years)	35.1	33.9
Males	13	12
Females	7	8
Mean BMI (Kg/m^2)	23.7	24.1
Duration of rhinitis (years)	5.9	6.4

Table 2: Mean decrease of total severity score (TSS) from baseline of patients treated with cetirizine versus ebastine during the first 7-day period

Variable	Cetirizine group	Ebastine group
Mean percentage decrease in TSS	46.9	32.7
SD	3.7	2.9
p-value	0.001 (Significant)	

DISCUSSION

Allergic rhinitis (AR) is characterized by an inflammatory response mediated by allergen-specific immunoglobulin E, which is provoked by airborne allergens. This condition frequently manifests as nasal obstruction, sneezing, itching, or rhinorrhea. AR can be instigated by either perennial or seasonal allergens, or a combination of both types. House dust mites (HDMs) are recognized as the predominant cause of perennial respiratory allergies. Given the challenges associated with eradicating HDMs from sleeping environments, their presence can adversely impact sleep quality. The prevailing approach to managing perennial AR emphasizes pharmacotherapy, including the daily use of antihistamines to alleviate symptoms temporarily, alongside allergen avoidance strategies aimed at minimizing indoor exposure, such as utilizing allergen-impermeable fabric for bedding encasement. Histamine, acting predominantly via the H1-receptor, is an important mediator of the symptoms of allergy. It is released as a preformed mediator from activated mast cells during the early phase of the immune response. H1-antihistamines, which stabilize the receptor in its inactive form, are the treatment of choice for allergic conditions and are included in international guidelines for the management of allergic rhinitis and urticaria.[9- 11] Hence; the present study was conducted for assessing and comparing results of cetirizine and ebastine in patients with perennial allergic rhinitis.

Mean age of the patients of cetirizine group and Ebastine group was 35.1 years and 33.9 years. There were 13 males and 7 females in cetirizine group and 12 males and 8 females in ebastine group. Mean duration of rhinitis was 5.9 years and 6.4 years respectively. Mean percentage decrease in TSS among cetirizine group and ebastine group was 46.9 percent and 32.7 percent respectively (p-value < 0.05). The efficacy of daily treatment with ebastine, 10 mg, ebastine, 20 mg, or cetirizine, 10 mg, for relieving symptoms of seasonal allergic rhinitis in adults was compared in a previous study conducted by Gehanno P et al. Outpatients were assigned to one of three parallel treatment groups: ebastine at a dosage of 10 mg, ebastine at 20 mg, or cetirizine at 10 mg, all administered once daily in the morning for a duration of two weeks. The groups consisted of ebastine, 20 mg (n = 111), ebastine, 10 mg (n = 116), and cetirizine, 10 mg (n = 116), all of which demonstrated efficacy in alleviating nasal and ocular symptoms. Notably, there was a discernible trend indicating that ebastine, 20 mg provided more rapid symptom relief, achieving statistical significance in certain efficacy measures after the initial week of treatment. In a subset of 158 patients exhibiting more severe symptoms, ebastine, 20 mg showed a statistically significant greater improvement compared to ebastine, 10 mg, as evidenced by the mean change from baseline in the total symptom score averaged throughout the treatment period and in the morning symptom score. All three treatment options were well tolerated, with dry mouth, headache, and somnolence being the most frequently reported adverse events. The administration of ebastine (10 mg), cetirizine (10 mg), and ebastine (20 mg) orally once daily for two weeks appears to be effective in alleviating the symptoms associated with seasonal allergic rhinitis.[13]

The clinical efficacy and safety of once daily cetirizine 10 mg were compared with ebastine 10 mg in patients with perennial allergic rhinitis in a previous study conducted by Murris-Espin M et al. Two hundred fourteen patients (120 females, 94 males, aged 17 to 70 years, mean 31.2 years) were selected on the basis of perennial allergic rhinitis history, positive skin test for perennial allergens and a minimum rhinitis symptom score of 6/12. Patients recorded nasal symptom severity (nasal stuffiness, nasal discharge, sneezing, and itching) once daily on diary cards using a rating scale of 0 (none) to 3 (severe). Clinicians made an overall evaluation after 4 weeks of treatment. An intent-to-treat-analysis was performed comparing cetirizine (106 patients) and ebastine groups (108 patients). The individual and total baseline symptom scores were comparable in both treatment groups. During the first week, the percentage mean decrease in the total nasal symptom score from baseline (sum of nasal stuffiness, discharge, sneezing, and itching) was significantly higher for cetirizine 46.2% than for ebastine 32.8%. After 4 weeks of treatment, total symptom score improvement was 53.7% for cetirizine and 44.7% for ebastine, and the clinician's overall evaluation showed that the percentage of symptom-free patients was significantly higher for cetirizine 17.8% than for ebastine 6.9%. Cetirizine also significantly improved nasal stuffiness. An associated anti-inflammatory effect is suggested. Commonly reported drug-related side effects were similar in both groups. Their study showed that both antihistamines, cetirizine 10 mg and ebastine 10 mg once a day, improved symptom scores of patients with perennial allergic rhinitis.[14]

CONCLUSION

Significant better results were obtained among patients treated with cetirizine.

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