

Clinical Profile and Therapeutic Outcomes in Patients with Rhinitis: A Retrospective Case Series

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Abstract

Introduction: Rhinitis is a common inflammatory disorder of the nasal mucosa characterized by symptoms such as nasal obstruction, rhinorrhea, sneezing, and nasal itching. Rhinitis is of three types: Allergic rhinitis, Non-allergic rhinitis and Infectious rhinitis. Moderate to severe rhinitis can significantly affect sleep, daily activities, and quality of life. This is a series of 5 cases in adult patients suffering with moderate to severe rhinitis. This case series was undertaken to describe the clinical characteristics, laboratory findings, and treatment outcomes among patients presenting with moderate to severe rhinitis.

Objective: This retrospective case series included patients diagnosed with moderate to severe rhinitis who attended the outpatient department of Otorhinolaryngology during the study period.

Material and Methods: Demographic characteristics, clinical symptoms, possible precipitating factors, and relevant laboratory investigations, including absolute eosinophil count and serum immunoglobulin E (IgE) were obtained from medical records. Patients were classified according to the clinical and laboratory findings into allergic and non-allergic rhinitis. Treatment response was assessed clinically during follow-up.

Results and Discussion: This study showed the effectiveness of mometasone and bilastine combination as a therapeutic option for the management of rhinitis.

Keywords: Rhinitis, Allergens, Intranasal Corticosteroids, Total symptom score, Rhinorrhea

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Introduction

Rhinitis refers to inflammation of the nasal mucosa and is typically manifested by symptoms such as rhinorrhea, sneezing, nasal obstruction, and nasal itching. Allergic rhinitis is the most common kind of rhinitis which is triggered by airborne allergens like pollen and dander.^[1] Such allergens may affect the eyes also causing symptoms like red, watery or itchy eyes and puffiness around the eyes. Other symptoms associated with allergic rhinitis are headache, fatigue, malaise and cognitive impairment.^[2]

Rhinitis is of three types

Allergic rhinitis

An inflammatory condition of the nasal mucosa caused by an IgE-mediated immune response to inhaled allergens such as pollen, house-dust, mites, animal dander, or molds.

Non-allergic rhinitis

A condition characterized by nasal symptoms without evidence of an IgE-mediated allergic response.^[3] Symptoms may be triggered by factors such as changes in temperature, humidity, strong odors, smoke, pollutants, spicy food, or certain medications.

Infectious rhinitis

It is an acute condition which is due to a virus or bacterial condition.

Rhinitis is highly prevalent worldwide and may be a major cause of illness and disability. Allergic rhinitis affects about 10-25% of world population and 20-30% of Indian population.^[4]

Intranasal corticosteroids are considered as first-line therapy for allergic rhinitis as recommended by the American Academy of Allergy, Asthma and Immunology and the American college of Allergy, Asthma and Immunology. Antihistamines, nasal decongestants, cromolyn, leukotriene receptor antagonists and nasal irrigation constitute the second line therapy.^[5]

This is a series of 5 cases diagnosed from moderate to severe rhinitis reporting to the outpatient department of otorhinolaryngology, BRD Medical College, Gorakhpur between February 2022 and May 2022. The patients presented with symptoms and signs of allergic and non-allergic rhinitis. Pregnant and lactating women, paediatric patients and patients suffering from any systemic disease such as hypertension and diabetes mellitus were not included in the study.^[6]

The patients were treated with mometasone furoate nasal spray 2 spray actuations (50 micrograms per spray actuation) in each nostril once daily (total daily dose 200 micrograms) along with bilastine tablets (20 mg per day).

A detailed history was taken and clinical examination was done on the patients. Subjective scoring for rhinitis symptoms, serum IgE level and the eosinophilic count was done in the patients. Efficacy was assessed by change in total symptom score (TSS) which is the sum of total nasal symptom score (TNSS) and total ocular symptom score (TOSS) after 3 months from baseline. Total nasal symptom score is calculated for six nasal symptoms (nasal congestion, rhinorrhea, postnasal drip, nasal itching, smelling disorder and sneezing). Total ocular symptom score is calculated for 4 ocular symptoms (itching, tearing, redness and puffiness). Changes in the serum IgE level and absolute eosinophilic count were also noted.^[7]

Ethical clearance was taken from the Institutional Ethics Committee.

Case 1

A 20 years old female reported to the Otorhinolaryngology outpatient department in BRD Medical college, Gorakhpur. She presented with chief complains of sneezing, ear discharge and epistaxis. There was no family history of allergy. There was no history of exposure to any allergen. She was diagnosed with non-allergic rhinitis and the causative factor was found to be cold bath. Type of allergy was seasonal which mainly occurred during winter season and the duration of illness was about past 4 months. Total symptom score which is a sum of total nasal symptom score and total ocular symptom score was calculated to be 5 at baseline. Absolute eosinophilic count was 456 / cu mm (Normal range : 40-400 /cu mm) at baseline. Serum IgE level was 380 IU/ml (Normal range <100 IU/ml) at baseline. After 3 months of treatment with bilastine and mometasone nasal spray combination, total symptom score was reduced to 2. Absolute eosinophilic count value was reduced to 325 / cu mm and Serum IgE level was reduced to 280 IU/ml after three months of treatment. The patient also reported sore throat as adverse effect of the medications.

Case 2

A 24 years old female presented to the Otorhinolaryngology outpatient department in BRD Medical college, Gorakhpur with chief complains of sneezing and cold. Family history of allergy was present. She was diagnosed with allergic rhinitis and there is positive history of exposure to allergen which includes house dust and dusty winds. Type of allergy was perennial and duration of illness was for past 1 year. Total symptom score which is a sum of total nasal symptom score and total ocular symptom score was calculated to be 16 at baseline. Absolute eosinophilic count was 989 / cu mm (Normal range: 40-400 /cu mm) at baseline. Serum IgE level was 1012.2 IU/ml (Normal range <100 IU/ml) at baseline. After 3 months of treatment with bilastine and mometasone nasal spray combination, total symptom score was reduced to

6. Absolute eosinophilic count value was reduced to 726 / cu mm and Serum IgE level was reduced to 701.1 IU/ml after three months of treatment. The patient also reported dryness of nose as adverse effect of the medications.

A 32 years old male patient presented to the Otorhinolaryngology outpatient department in BRD Medical college, Gorakhpur with chief complains of sneezing and heaviness in head. Family history of allergy was absent. He was diagnosed with non-allergic rhinitis. There is positive history of exposure to allergen which includes wood dust as he was a factory worker by occupation. Type of allergy was seasonal and duration of illness was for past 15 days. Total symptom score which is a sum of total nasal symptom score and total ocular symptom score was calculated to be 6 at baseline. Absolute eosinophilic count was 433 / cu mm (Normal range : 40-400 /cu mm) at baseline. Serum IgE level was 325 IU/ml (Normal range <100 IU/ml) at baseline. After 3 months of treatment with bilastine and mometasone nasal spray combination, total symptom score was reduced to 2. Absolute eosinophilic count value was reduced to 370 / cu mm and Serum IgE level was reduced to 210 IU/ml after three months of treatment. The patient also reported headache as adverse effect of the medications.

A 43 years old male patient presented to the Otorhinolaryngology outpatient department in BRD Medical college, Gorakhpur with chief complains of recurrent cold, sneezing and rhinorrhea. Family history of allergy was absent. He was diagnosed with allergic rhinitis. There is positive history of exposure to allergen which includes dust and other factors associated were food, cold-drink and ice-cream. Type of allergy was perennial and duration of illness was for past 1 year. Total symptom score which is a sum of total nasal symptom score and total ocular symptom score was calculated to be 20 at baseline. Absolute eosinophilic count was 624 / cu mm (Normal range : 40-400 /cu mm) at baseline. Serum IgE level was 1949 IU/ml (Normal range <100 IU/ml) at baseline. After 3 months of treatment with bilastine and mometasone nasal spray combination, total symptom score was reduced to 7. Absolute eosinophilic count value was reduced to 402 / cu mm and Serum IgE level was reduced to 1533.8 IU/ml after three months of treatment. The patient also reported headache as adverse effect of the medications.

A 65 years old male patient presented to the Otorhinolaryngology outpatient department in BRD Medical college, Gorakhpur with chief complains of sneezing, fever and recurrent cold. Family history of allergy was absent. He was diagnosed with allergic rhinitis. There is positive history of exposure to allergen which includes pollen dust as he was a farmer by occupation. Type of allergy was perennial and duration of illness was for past 4 years. Total symptom score which is a sum of total nasal symptom score and total ocular symptom score was calculated to be 9 at baseline. Absolute eosinophilic count was 1215 / cu mm (Normal range : 40-400 /cu mm) at baseline. Serum IgE level was 832 IU/ml (Normal range <100 IU/ml) at baseline. After 3 months of treatment

with bilastine and mometasone nasal spray combination, total symptom score was reduced to 3. Absolute eosinophilic count value was reduced to 982 / cu mm and Serum IgE level was reduced to 636 IU/ml after three months of treatment. The patient also reported nausea as adverse effect of the medications.

Discussion

Allergic rhinitis is a common chronic inflammatory disorder of the nasal mucosa resulting from an IgE mediated hypersensitivity reaction to specific allergens. It is characterized by symptoms such as sneezing, nasal itching, rhinorrhea, and nasal obstruction, which can substantially affect patient's quality of life and daily activities.^[8] In the present case series, patients presented with varying combinations and severity of these symptoms.

The most frequently reported triggering factors were environmental allergens, particularly exposure to dust and seasonal allergens. The clinical presentation was supported by laboratory findings, including absolute eosinophil count and serum IgE levels.^[9] Patients with allergic rhinitis may demonstrate peripheral eosinophilia and elevated serum IgE level, reflecting the underlying inflammatory response.^[10] Patients with non-allergic rhinitis generally demonstrated normal or slightly elevated absolute eosinophilic count and serum IgE level.

The findings of this case series highlight the importance of recognizing common environmental triggers and establishing an appropriate clinical diagnosis. Identification and avoidance of relevant allergens, along with appropriate pharmacological treatment, remain important components of management. Early recognition and treatment may help reduce symptom burden and improve the quality of life of patients.

Table 1 shows the clinical types of rhinitis: allergic or non-allergic rhinitis and associated etiological factors among the patients of moderate to severe rhinitis.

Table 2 shows the total symptom score values at baseline and after 3 months of treatment showing that mometasone furoate and bilastine combination was effective in reducing the total symptom score among patients of moderate to severe rhinitis.

Table 3 shows absolute eosinophilic count values at baseline and after 3 months of treatment showing

Table 1: Clinical types of rhinitis and associated etiological factors

Patient no.	Type of rhinitis	Causative factor
1	Non-allergic rhinitis	Cold bath
2	Allergic rhinitis	House dust and dusty winds
3	Non-allergic rhinitis	Wood dust
4	Allergic rhinitis	Dust and other factors associated were food, cold-drink and ice-cream
5	Allergic rhinitis	Pollen dust

Table 2: Total symptom score at baseline and after 3 months of treatment

Patient no.	Total symptom score (at baseline)	Total symptom score (after 3 months of treatment)
1	5	2
2	16	6
3	6	2
4	20	7
5	9	3

Table 3: Absolute eosinophilic count at baseline and after 3 months of treatment

Patient No.	Absolute eosinophilic count (at baseline)	Absolute eosinophilic count (after 3 months of treatment)
1	456 / cu mm	325 / cu mm
2	989 / cu mm	726 / cu mm
3	433 / cu mm	370 / cu mm
4	624 / cu mm	402 / cu mm
5	1215 / cu mm	982 / cu mm

Table 4: Serum IgE levels at baseline and after 3 months of treatment

Patient No.	Serum IgE level (at baseline)	Serum IgE level (after 3 months of treatment)
1	380 IU/ml	280 IU/ml
2	1012.2 IU/ml	701.1 IU/ml
3	325 IU/ml	210 IU/ml
4	1949 IU/ml	1533.8 IU/ml
5	832 IU/ml	636 IU/ml

mometasone furoate and bilastine combination was effective in reducing the absolute eosinophilic count values among patients of moderate to severe rhinitis.

Table 4 shows Serum IgE levels at baseline and after 3 months of treatment showing that mometasone furoate and bilastine combination was effective in reducing serum IgE levels among patients of moderate to severe rhinitis.

Conclusion

The study shows that mometasone furoate and bilastine combination was effective in controlling the symptoms of rhinitis, as demonstrated by reduction in total symptom score after treatment. Treatment was also associated with a reduction in absolute eosinophilic count and serum IgE levels, suggesting an improvement in the underlying inflammatory response. These findings support the effectiveness of mometasone and bilastine combination as a therapeutic option for the management of rhinitis.

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