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Original Article

Comparative Evaluation of Efficacy and Safety of Rupatadine and Olopatadine in Allergic Rhinitis at a Tertiary Care Hospital

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ABSTRACT

Background: Allergic rhinitis, an IgE-mediated hypersensitivity disorder, is highly prevalent and influenced by genetic, epigenetic, and environmental factors, with variable epidemiologic patterns. As dual-action H1 antagonists with PAF inhibitory effects, olopatadine and rupatadine offer effective symptom control, and this study was designed for comparative evaluation of efficacy and safety of rupatadine and olopatadine in allergic rhinitis at a tertiary care hospital.

Materials & Methods: One hundred allergic rhinitis patients (18–65 years, TNSS ≥8) were randomized to receive either olopatadine 10 mg or rupatadine 10 mg once daily for two weeks. Baseline and follow-up assessments, including labs, ECG, and TNSS, were performed, with the primary outcome being change in total nasal symptom score (TNSS); data were analyzed using parametric and nonparametric tests.

Results: Baseline characteristics, including age, gender distribution, duration of suffering, and initial TNSS, were comparable between the olopatadine and rupatadine groups. Both groups showed improvement in TNSS during follow-up, but olopatadine produced a significantly greater reduction at the second visit (10.7 vs 13.7, p = 0.00). IgE levels decreased in both groups, with a more pronounced reduction in the olopatadine group at the second follow-up (297.2 vs 310.8, p = 0.01). Overall, olopatadine demonstrated superior long-term efficacy in controlling symptoms and lowering IgE compared to rupatadine.

Conclusion: While both rupatadine and olopatadine are effective dual-action H1 antagonists, olopatadine provides superior therapeutic benefit, making it the preferred option for allergic rhinitis management.

KEYWORDS: Rupatadine, Olopatadine, Allergic rhinitis, Total nasal symptom score.

INTRODUCTION

Allergic rhinitis is an IgE-mediated type I hypersensitivity disorder of the nasal mucosa, clinically presenting with recurrent episodes of sneezing, watery nasal discharge, and nasal obstruction. In literature, it is variably referred to as allergic rhinitis, nasal allergy, nasal hypersensitivity, or pollinosis. According to the ARIA guidelines, it is categorized into perennial and seasonal forms. Pollinosis, a seasonal variant triggered by pollen antigens, is often associated with concomitant allergic conjunctivitis.[1,2]

The prevalence of AR is sometimes cited as 10% to 30% of adults and up to 40% of children; however, these numbers imply a substantially higher prevalence of AR than larger studies that define AR as allergy history combined with positive allergy testing. It is possible that the discordance between self-reported allergies and positive allergy testing was not fully appreciated in the past. This distinction is important because most treatment studies use history and positive allergy testing for inclusion. Allergic disease is a product of a genetic predisposition, epigenetic events, and environmental exposures. This complexity underlies why epidemiologic results often show marked variability when studies are performed in different populations and locations.[3-6]

Olopatadine and rupatadine are newer dual-action H1-receptor antagonists with additional platelet-activating factor (PAF) inhibitory effects. Olopatadine is effective in allergic rhinitis, urticaria, and conjunctivitis, with

superior relief of nasal obstruction compared to similar agents. Rupatadine, a non-sedating long-acting antihistamine, provides rapid and sustained symptom control in seasonal and perennial allergic rhinitis and chronic idiopathic urticaria with once-daily dosing.[7, 8] Hence; the present study was conducted for comparative evaluation of efficacy and safety of rupatadine and olopatadine in allergic rhinitis at a tertiary care hospital.

MATERIALS & METHODS

A total of 100 patients with clinically diagnosed allergic rhinitis, aged between 18 and 65 years, and presenting with a baseline TNSS score of ≥8 were enrolled in the study. Following initial screening, detailed medical history, physical examination, and baseline laboratory investigations, participants fulfilling the eligibility criteria were randomized by block allocation in a 1:1 ratio into two treatment arms: one receiving olopatadine 10 mg once daily and the other rupatadine 10 mg once daily. Comprehensive baseline assessments including hematological and biochemical tests, electrocardiogram, and TNSS scoring were carried out, with repeat evaluations performed at the end of the two-week treatment period. Patients were specifically instructed to abstain from the use of any additional antiallergic medications, including antihistamines, corticosteroids, or central nervous system depressants, to ensure unbiased assessment of the study drugs. The primary outcome was defined as the change in TNSS from baseline to two weeks, thereby reflecting the degree of symptom improvement achieved with each intervention.

Data were analyzed using both parametric and nonparametric statistical tests to ensure accurate interpretation of efficacy and safety outcomes between the two groups.

RESULTS

The baseline characteristics of patients were comparable between the two groups, with the mean age slightly lower in the olopatadine group (29.3 years) compared to the rupatadine group (33.7 years), though the difference was not significant. Gender distribution was also similar, with 27 males and 23 females in the olopatadine group and 30 males and 20 females in the rupatadine group. The mean duration of suffering was almost equal across groups (15.4 vs 16.7 months, p = 0.92), and baseline TNSS values showed no significant variation (15.9 vs 15.1, p = 0.44). During follow-up, both groups exhibited a reduction in TNSS, but the improvement was more pronounced in the olopatadine group. At the first follow-up, TNSS decreased modestly in both groups without statistical significance, whereas at the second follow-up, olopatadine showed a significant reduction (10.7) compared to rupatadine (13.7), with p = 0.00. Similarly, IgE levels at baseline and first follow-up were comparable across both groups, but by the second follow-up, olopatadine demonstrated a significantly greater reduction (297.2 vs 310.8, p = 0.01). These findings suggest that while both agents were effective, olopatadine provided superior long-term efficacy in reducing symptom severity and IgE levels compared to rupatadine.

Table 1: Baseline Characteristics

Characteristics	Olopatadine Group (n=50)	Rupatadine Group (n=50)	P value
Mean age (years)	29.3	33.7	0.28
Males	27	30	0.18
Females	23	20	
Duration of suffering (months)	15.4	16.7	0.92
Total Nasal Symptom Score	15.9	15.1	0.44

Table 2: Comparison of outcome as assessed by TNSS

Visit	Olopatadine Group (n=50)	Rupatadine Group (n=50)	p-value
Baseline	15.9	15.1	0.44
1st follow-up visit	13.3	12.9	0.28
2nd follow-up visit	10.7	13.7	0.00*

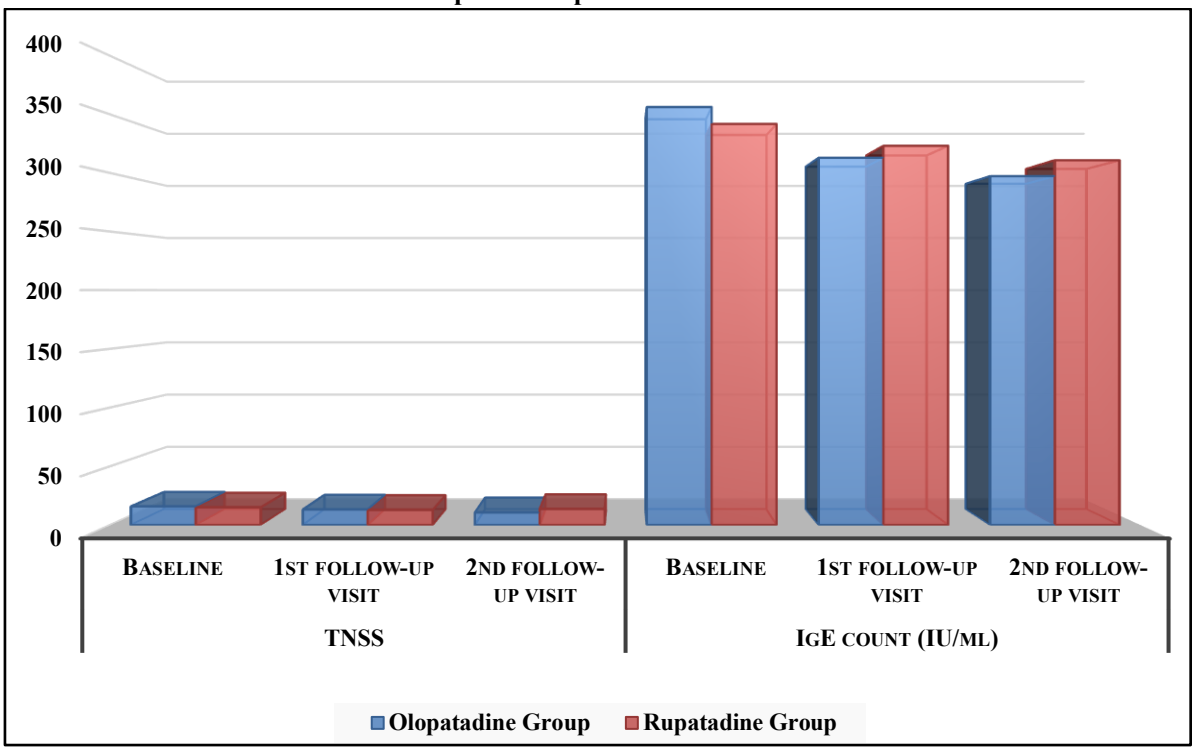
*: Significant

Table 3: Comparison of IgE count (IU/ml)

Visit	Olopatadine Group (n=50)	Rupatadine Group (n=50)	p-value
Baseline	356.2	341.8	0.39
1st follow-up visit	312.9	323.1	0.74
2nd follow-up visit	297.2	310.8	0.01*

*: Significant

Graph 1: Comparison of outcome



DISCUSSION

Allergic rhinitis, owing to its high prevalence and substantial impact on quality of life, requires timely and appropriate management. The clinical manifestations, including recurrent sneezing, nasal obstruction, and rhinorrhea, necessitate the use of pharmacological agents that are both effective and well tolerated, particularly for long-term administration. In current clinical practice, H1-antihistamines and intranasal corticosteroids form the cornerstone of therapy. These agents not only provide significant symptomatic relief but also possess favorable safety profiles, making them suitable for prolonged use.[9, 10] Hence; the present study was conducted for comparative evaluation of efficacy and safety of rupatadine and olopatadine in allergic rhinitis at a tertiary care hospital.

In the present study, baseline characteristics, including age, gender distribution, duration of suffering, and initial TNSS, were comparable between the olopatadine and rupatadine groups. Both groups showed improvement in TNSS during follow-up, but olopatadine produced a significantly greater reduction at the second visit (10.7 vs 13.7, p = 0.00). IgE levels decreased in both groups, with a more pronounced reduction in the olopatadine group at the second follow-up (297.2 vs 310.8, p = 0.01). Overall, olopatadine demonstrated superior long-term efficacy in controlling symptoms and lowering IgE compared to rupatadine. Fairchild et al. evaluated olopatadine nasal spray in 1240 SAR patients through two randomized, double-blind trials comparing 0.6% and 0.4% doses with placebo. Both doses significantly improved TNSS, RQLQ, and WPAI-AS scores versus placebo, with stronger effects seen at 0.6%. Symptom relief correlated with better quality of life, reduced work impairment, and improved daily activities. Adverse events were mild and infrequent, confirming olopatadine as a safe and effective intranasal therapy for SAR.[10] Malti R et al in 2010 conducted a 2-week randomized comparative study on 60 patients with seasonal allergic rhinitis to evaluate rupatadine versus levocetirizine. Both drugs significantly reduced eosinophil counts, but rupatadine showed greater improvement in IgE levels (P = .004) and TNSS (P < .001). Quality of life scores decreased more in the rupatadine group (18.08%, P = .02). Adverse effects were fewer with rupatadine than levocetirizine. Overall, rupatadine demonstrated superior efficacy and safety, making it a better therapeutic option for seasonal allergic rhinitis.[11] In another similar research in 2011 by Malti R et al, authors assessed 70 patients with seasonal allergic rhinitis to assess olopatadine versus rupatadine. Both agents significantly reduced eosinophil counts (P<0.001), but olopatadine showed greater reduction in serum IgE (P=0.01), TNSS (P<0.001), and RQLQ scores (P=0.015). Symptom improvement and quality of life benefits were more pronounced with olopatadine. Adverse effects were fewer in the olopatadine group compared to rupatadine. Overall, olopatadine demonstrated superior efficacy and safety, making it the preferred agent for SAR management.[12] Meltzer EO et al, in another similar study, evaluated the safety and efficacy of 2 concentrations of olopatadine nasal spray vs placebo in patients with SAR. Olopatadine spray (0.4% and 0.6%) was significantly superior to placebo for percentage change from baseline in overall reflective and instantaneous TNSSs. Also, 0.6% olopatadine was

significantly superior to placebo for reducing the reflective and instantaneous assessments of sneezing, runny and itchy nose, and itchy eyes; the instantaneous assessments of watery eyes; and the overall and all 7 domain scores of the RQLQ. Olopatadine spray exhibited a safety profile comparable with that of placebo. Olopatadine nasal spray (0.4% and 0.6%) provided statistically significant improvements in allergic rhinitis symptoms compared with placebo regarding TNSSs (reflective and instantaneous) and in quality-of-life variables in patients with SAR.[13]

CONCLUSION

Both rupatadine and olopatadine are newer generation dual-action H1 receptor antagonists. The magnitude of benefit was significantly greater with olopatadine. Thus, while both drugs are effective, olopatadine appears to confer a more pronounced therapeutic benefit, making it a preferred choice in achieving optimal symptom management in allergic rhinitis.

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