

Comparative Study of Safety and Efficacy of Olopatadine with Bepotastine in Allergic ConjunctivitisP. Viswa Teja Reddy¹, T. Sreevathsala²¹Assistant Professor, Department of Ophthalmology, Santhiram medical college NH40, Nandyal, Andhra Pradesh-518501²Associate Professor, Department of Ophthalmology, Santhiram medical college NH40, Nandyal, Andhra Pradesh-518501

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Conflict of interest: Nil

Abstract**Background:** Allergic conjunctivitis is rarely vision-threatening but decreases the quality of life of the patients if untreated.**Method:** Out of 140 patients with allergic conjunctivitis studied, visual acuity was measured using the smallest charts, and a slit lamp examination was done on every patient. 70 patients were administered topical 0.1% olopatadine (group A), and 70 were administered 1.5%. Bepotastine eye drops BD on the 7th and 21st - 28th days. Further grading of signs and symptom scores were compared in both patients, and significant results were noted.**Results:** Group A was treated with 0.1% olopatadine eye drops, and Group B was treated with bepotastine 1.5% on the 7th day. Redness grading was 0 in 92.8% of patients, and 5 patients had a 1 redness score in Bepotastine; 82.8% of patients had a 0 grade of redness, and 17.1% had a 1 grade of redness in olopatadine.**Conclusion:** Although both olopatadine 0.1 and bepotastine besilate 1.5% are effective in treating allergic conjunctivitis. However, bepotastine besilate is more efficient in the early control of itching and redness in allergic conjunctivitis.**Keywords:** Visual Acuity, Redness, Itching And Watering, Slit Lamp, Snellen's Chart, Signs And Symptoms.This is an Open Access article that uses a funding model which does not charge readers or their institutions for access and distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0>) and the Budapest Open Access Initiative (<http://www.budapestopenaccessinitiative.org/read>), which permit unrestricted use, distribution, and reproduction in any medium, provided original work is properly credited.**Introduction**

Ocular allergy is a commonly encountered pathology in clinical practice, which is often underdiagnosed and consequently untreated. Allergic conjunctivitis can be seen as an isolated pathology, but it is often associated with allergic rhinitis, atopic dermatitis, and/or asthma. Allergic diseases have dramatically increased now days [1]. The allergic conjunctivitis disease prevalence varies from 1.4% to 39.7% globally in children and adults [2].

Allergic conjunctivitis is rarely vision threatening but can significantly decrease the quality of life of patients [3]. There are three types of allergic conjunctivitis simple allergic conjunctivitis, seasonal allergic conjunctivitis (SAC), perennial allergic conjunctivitis (PAC) and atopic kerato conjunctivitis (AKC).

Seasonal allergic conjunctivitis (SAC) and perennial allergic conjunctivitis (PAC) are the most common types of ocular allergies, affecting 15-20% of the population [4]. AKC is the chronic allergic inflammation of the ocular surface mediated mainly by Th-2 lymphocytes. Also, there

is over-expression of mast cells, eosinophils, neutrophils, Th2-derived cytokines, and chemokines.

Seasonal allergic conjunctivitis and perennial allergic conjunctivitis pathogenesis are predominantly IgE-mediated hypersensitivity reactions caused by an allergen-induced inflammatory response in which allergens interact with IgE bound to sensitized mast cells, resulting in the allergic expression. Hence, an attempt is made to evaluate the various clinical manifestations of allergic conjunctivitis and treat them with olopatadine and bepotastine.

Material and Method

140 adult patients who regularly visited the ophthalmology department of Santhiram Medical College, NH40, Nandyal, Andhra Pradesh-518501, were studied.

Inclusive Criteria: Patients above 18 years of age who gave written consent for treatment, diagnosed with allergic conjunctivitis, have intraocular pressure <18 mm Hg in both eyes, and who gave

their consent for the study in writing were selected for the study.

Exclusion Criteria: Patients having known hypersensitivity to either agent who are blind or having single eye surgery during the trial period, suffering from dry eyes and a Schirmer <10 mm, unable to come for regular follow-ups, pregnant and lactating mothers with a history of alcohol or drug abuse, or who were taking steroids or antihistamines within 7 days prior to enrollment were excluded from the study.

Method: Visual acuity was measured using Snellen's charts; both uncorrected and best corrected visual acuities were noted in every

patient. Anterior segment evaluation by diffuse torch light and slit lamp examination was done to rule out signs of allergic conjunctivitis. Patients were randomly grouped into groups A (70 patients) and II (70 patients). Group A patients were administered Topical 0.1% olopatadine eye drops B.D. Group B was administered. Topical 1.5% Bepotastine Eye Drop B.D.

The ophthalmological check-up was done using a slit lamp on the next day, the 7th day, and the 21st – 28th day.

Four uniform graded symptoms and signs at each visit and followed the scoring tables of 1 and 2 for symptoms.

Table 1:

Redness	0 – absent 1 – Mild 2 – Moderate 3 – severity
Itching	0 – absent 1 – Occasional 2 – Frequent 3 – Constant
Watering	0 – Normal tear 1 – Sensation of fullness of conjunctivitis 2 – in frequent over the lid margin 3 – constant spilling of tears over lid margin
Discomfort	0 – absent 1 – Mild 2 – Moderate 3 – severity
Corneal Epithelial sign	3 – Shield ulceration 2 – Exfoliation 1 – SPK 0 – None

Table 2: Scores of Signs

Peripheral conjunctival hyperaemia	3 – impossible to distinguish 2 – individual blood vessel dilatation of many 1 – Dilatation of several vessel 0 – None
Oedema	3 – Diffuse oedema 2 – Thinner diffuse 1 – Slight oedema 0 – None
Follicles	3 – 20 to More 2 – 10 to 19 1 – up to 9 0 – None
Papillae	3 – papilla size 0.6 mm or more 2 – 0.3–0.5 mm 1 – 0.1-0.2 mm 0 – None
Giant papillae (size ≥ 10mm)	3 – Elevated papillae in half or more of upper palpebral conjunctiva 2 – Elevated papillae in less than half upper palpebral conjunctiva 1 – Flat papillae 0 – None
Bulbar conjunctival Hyperaemia	3 – Diffuse dilated blood vessels over entire bulbar conjunctiva 2 – Dilation of many

	1 – Dilation of several vessels 0 – None
Odema	3 – Bullous odema 2 – Thinner diffuse 1 – localized odema 0 – None
Swelling	3 – $\geq 2/3^{\text{rd}}$ found in limbal 2 – $1/3^{\text{rd}}$ to $\leq 2/3^{\text{rd}}$ 1 – $\leq 1/3^{\text{rd}}$ 0 – None
Limbus Trantas spot	3 – ≥ 9 2 – 2-5 to 8 1 – 1 to 4 0 – None
Corneal Epithelial Sign	3 – Shield ulceration 2 – exfoliation SPK 1 – SPK 0 – None

The duration of the study was from January 2024 to December 2024.

Statistical analysis: 70 in group A, 70 in group B clinical manifestation were compared in grading and percentage. The statistical analysis was carried out in SPSS software. The ratio of male and female was 2:1.

Observation and Results

Table 1: Scoring of symptoms of redness, itching, watering, discomfort, 0-absent, 1-mild, 2-moderate, 3-severe

Table 2: Scoring of signs included palpebral conjunctival hyperemia, edema, follicles, papillae, giant papillae, bulbar conjunctival hyperemia, edema, and swelling of the limbus. Tranta's spot corneal epithelial signs

Table 3: Comparison of signs and symptoms

Group A: Follow-up Day 1

Itching grade II, redness grade II, watering grade I, foreign body sensation grade I, Signs of conjunctival congestion, grade II

Group B: Itching Grade I, Redness Grade I, Watering Grade I

Table 3: Comparison of signs and symptoms on follow up

Parameters	Follow up Day-1		Follow up Day-4		Follow up Day-24-28	
	Group-A	Group-B	Group-A	Group-B	Group-A	Group-B
(A) Symptoms						
Itching	Grade-2	Grade-3	Grade-5	Grade-0	Grade-0	Grade-0
Redness	Grade-2	Grade-1	Grade-1	Grade-1	Grade-0	Grade-0
Watering	Grade-1	Grade-1	Grade-0	Grade-0	--	--
Foreign Body Sensation	Grade-1	Grade-0	Grade-0	Grade-0	--	--
(B) Signs						
Conjunctival congestion	Grade-2	Grade-1	Grade-1	Grade-0	--	--
Papillae	--	--	--	--	--	--
Limbal thickening & pacification	--	--	--	--	--	--
Limbal papillae	--	--	--	--	--	--
Horner's trantas dots	--	--	--	--	--	--

Signs of congestion grade I

Follow up Day-7, Group-A, Itching grade I, redness grade I, watering grade 0, and foreign body sensation grade

Follow-up: 24-28 days Group A: Itching Grade 0

Redness grade-0, Group B: itching grade-0,

Redness grade-0

Table 4: Comparison of Redness on Follow-Up Day 1

First-day follow-up redness:

- 35 (50%) grade-0, 31 (44.2%) grade-I, and 4 (5.7%) grade-II in the Bepotastine group.
- 14 (20%) grade-0, 41 (58.5%) grade-I, and 15 (21.4%) grade-II in the olopatadine group.

Table 5: Comparison of Redness on Follow-up Day 7

Seven-day follow-up redness:

- In Bepotastine: 65 (92.8%) had 0-grading, 5 (7.1%) grade-I.
- In Olopatadine: 58 (82.8%) had grade-0, 12 (17.1%) grade-I.

Table 4: Comparison of Redness on Follow-up Day 1

Redness grading	First Day Follow-up Redness			
	Bepotastine (70)		Olopatadine (70)	
	Number	%	Number	%
0	35	50	14	20
1	31	44.2	41	58.5
2	4	5.7	15	21.4
Total	70	100	70	100

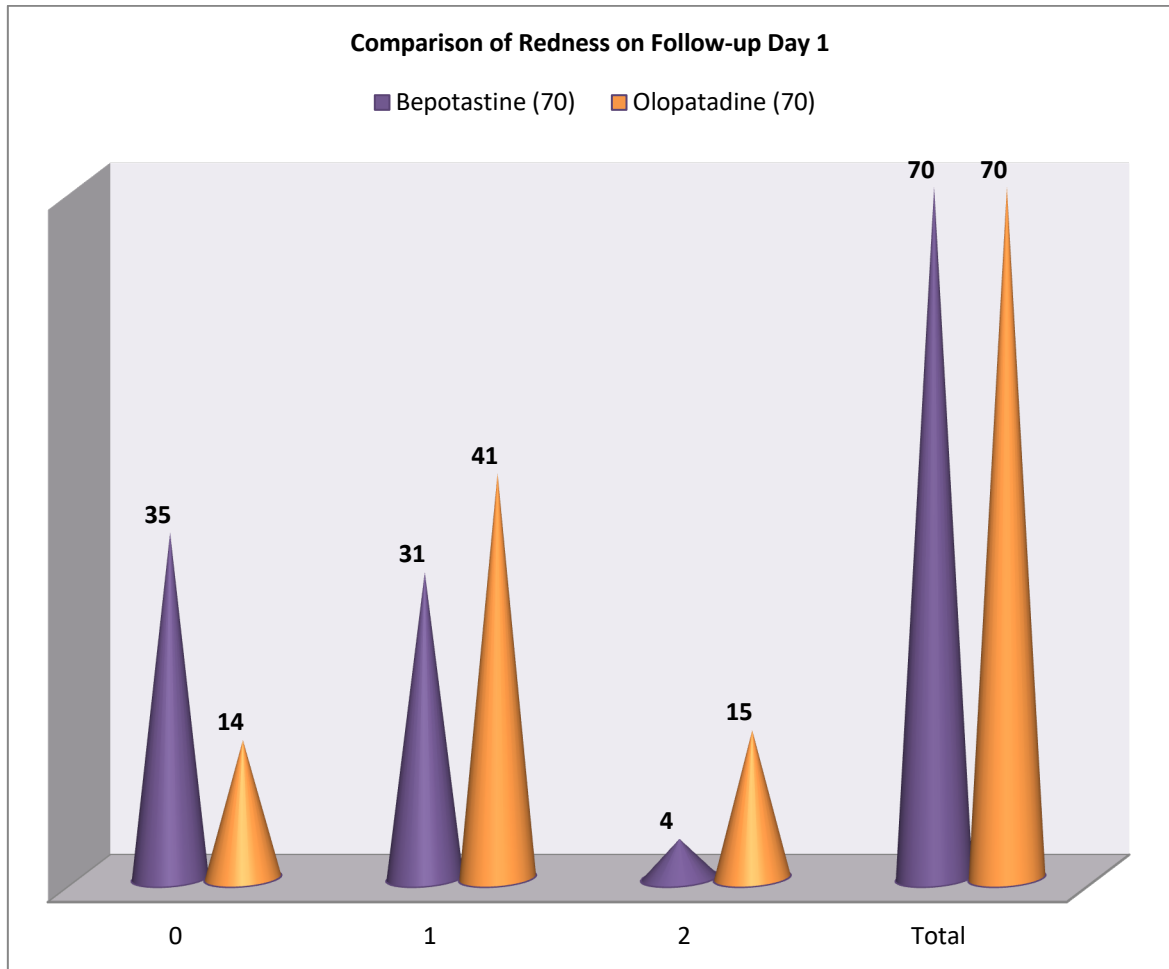


Figure 1: Comparison of Redness on Follow-up Day 1

Table 5: Comparison of Redness Follow-up Day-7

Redness grading	Severn days Follow-up Redness			
	Bepotastine (70)		Olopatadine (70)	
	Number	%	Number	%
0	65	92.8	58	82.8
1	5	7.2	12	17.1
Total	70	100	70	100

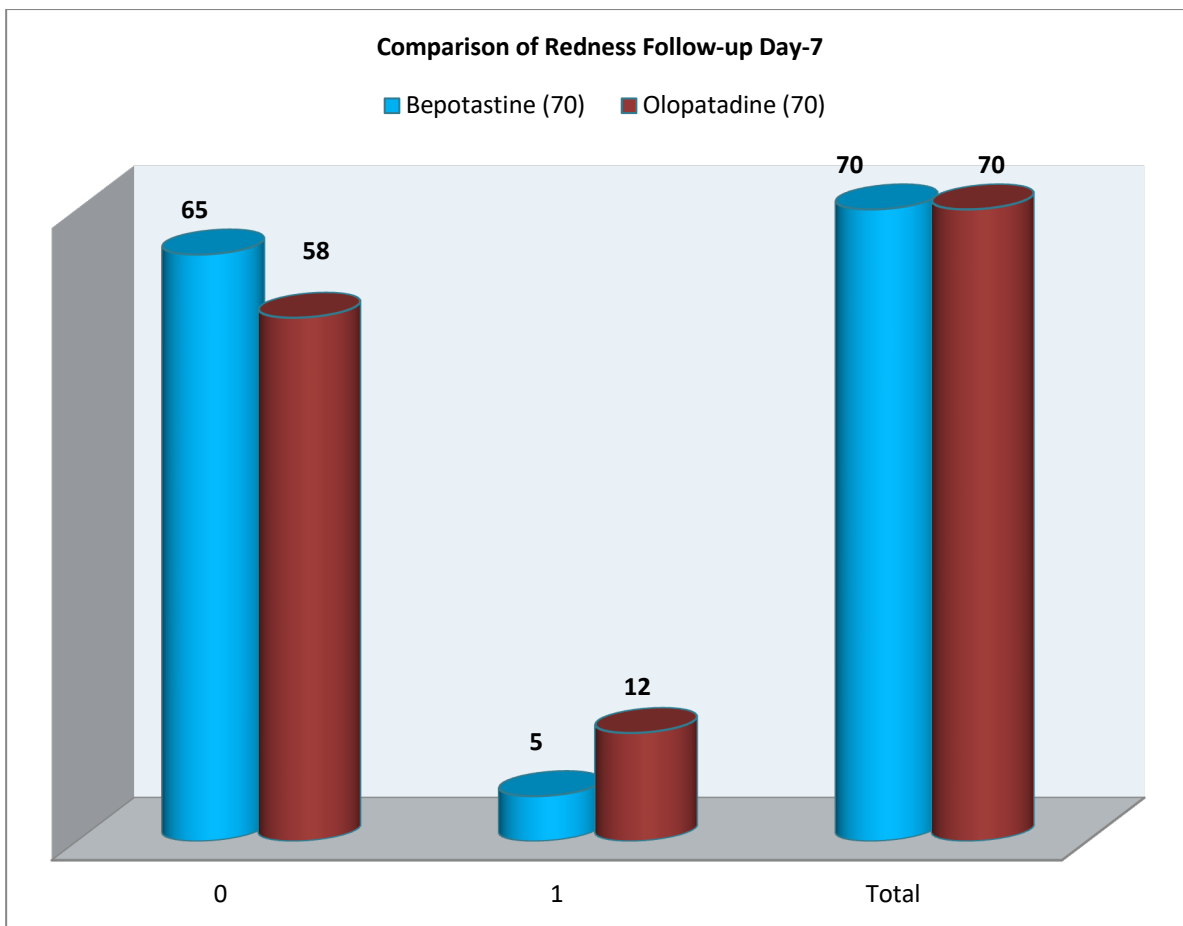


Figure 2: Comparison of Redness Follow-up Day-7

Discussion

Present a comparative study of the efficacy of olopatadine versus bepotastine in allergic conjunctivitis. Olopatadine was used to 70 patients (grade A), and bepotastine was administered to another 70 patients (group B). (A) Symptoms of Itching: Group A, Grade II, and in Group B: Grade I on the follow-up day on the 7th day, group A had grade I, and group B had grade 0 on the 24th – 28th day. Both groups had a grade of 0. On follow-up day 1, Group A had grade II, and Group B had grade I. On the 7th day, both groups had grade I, and on the 24th – 28th, both were watering. On follow-up day I, both groups had grade-I on the follow-up 7th day. Both groups had zero grades. Foreign body sensation Follow-up: Group A had grade II, and Group B had grade zero on the 7th day. Both groups had grade zero.

(B) In signs of conjunctival congestion on follow-up, on the 1st day, group A had grade II; on the 7th day, group A had grade I, and group B had zero grade (Table 3). In a comparative study of redness on follow-up day 1. In the Bepotastine group, 35 (50%) had zero grade, 31 (44.2%) had grade-1, and 4 (5.7%) had grade-2. In the Olopatadine group, 14 (20%) had zero grade, 41 (58.5%) had grade-1, and 15 (21.4%) had grade-2 (Table-4). In a comparative

study of redness follow-up on day 7, in the Bepotastine group, 65 (92.8%) had zero grade, and 5 (7.1%) had grade 1. In the Olopatadine group, 58 (82.8%) had zero grade, and 12 (17.1%) had grade 1 (Table 5). These findings are more or less in agreement with previous studies [5,6,7].

The increasing prevalence of allergic conjunctivitis and ocular discomfort necessitates the use of safe, highly effective, and comfortable topical medicine. However, the current literature lacks the comparative data to assist the eye care professional in selecting the appropriate initial topical treatment. A clinical diagnosis is made by assessing both group patient symptoms of intermittent or exposure-related ocular itching and signs of conjunctival papillae hyperemia and epiphora. It was interesting to note that 94% of patients with allergic conjunctivitis also had allergic rhinitis symptoms of nasal itching and rhinorrhea [8]. All of these symptoms have a negative impact on patients' ocular and nasal comfort and may result in disruption and restriction of daily activities and economic burden [9].

Bepotastine besilate 1.5% underwent three random placebo-controlled U.S. clinical studies, two conjunctival allergen challenge studies, and a six-week safety study with twice-daily dosing [10]. It

has rapid clinical benefit in treating allergen-induced ocular itching that lasts for at least 8 hours.

It is reported that olopatadine significantly reduced the itching score at 3, 5, and 10 minutes after antigen induction for up to 16 hours after dosing. In contrast, Bepotastine Besilate 1.5% was significantly more effective in relieving ocular itching relief between morning and evening [11].

In the present study, patients reported greater relief of evening ocular itch, an itchy or runny nose, and evening ocular allergy symptoms with Bepotastine besilate 5%. Thus, patients suffering from allergic conjunctivitis choose and comply with a twice-daily rather than once-daily dosing schedule because they feel that better relief of their ocular itching, itchy/runny nose, and ocular allergy symptoms in the evening is worth the effort of installing a second dose of their allergy eye drop.

Summary and Conclusion

In the present comparative study, patients preferred Bepotastine besilate 1.5% over olopatadine hydrochloride 2% for the treatment of ocular itch, itchy/runny nose, and ocular allergy symptoms associated with allergic conjunctivitis. The present study demands further genetic, environmental, nutritional, and pharmacological studies because the exact pathogenesis of allergic conjunctivitis is still unclear.

Limitation of study: owing to the remote location of the research center, the small number of patients, and the lack of the latest technique, we have limited findings and results.

This research work has been approved by the ethical committee of the Santhiram medical college NH40 Nandyal, Andhra Pradesh-518501.

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