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A Comparative Study of Alcaftadine (0.25%) And Olopatadine (0.2%) In Allergic Conjunctivitis

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Abstract
Background and objective*: to study the efficacy of alcaftadine compared to olopatadine in allergic conjunctivitis*
Methods and methodology: *this is a prospective study conducted from august 2019 for 6 months on patients attending ophthalmology opd of caims, karimnagar. Subjects of study divided into 3 groups.*
Inclusion criteria *: all patients with allergic conjunctivitis are taken.*
Exclusion criteria: *patients with active ocular infection (bacterial , fungal or viral), ocular surgeries within 3months or refractive surgeries within 6months,*
Previous history of usage of anti-allergic drugs.
Results: *alcaftadine demonstrated a significantly lower mean itch score over all time compared with olopatadine. The differences are clinically and statistically significant.*
Conclusions: *compared with olopatadine (0.2%), treatment with alcaftadine (0.25%) provided greater relief of ocular symptoms in patients with allergic conjunctivitis with similar safety profile.*
Keywords*: Allergic conjunctivitis, alcaftadine, olopatadine and itching*

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I. Introduction

Allergic conjunctivitis is one of the most common ocular conditions affecting adult and pediatric patients. An estimated 6–30% of the general population is affected by allergic conjunctivitis alone or in association with allergic rhinitis. In susceptible individuals, ocular exposure to allergens leads to immunoglobulin E-mediated mast cell degranulation and subsequent release of histamine and other inflammatory mediators. Activation of histamine receptors in the conjunctiva triggers ocular itching, the hallmark symptom of allergic conjunctivitis, and other signs and symptoms including conjunctival redness, tearing, eyelid swelling, and chemosis.

Topical ophthalmic antihistamines remain the primary therapy option for treating allergic conjunctivitis. Alcaftadine and olopatadine are classified as dual-action anti-allergic agents, directly inhibiting histamine receptor activation and indirectly preventing allergic responses by stabilizing mast cells. Antihistamines have different affinities toward histamine receptors, and thus may potentially have varying effects on mast cell stabilization and anti-inflammatory properties.

The objective of this study is to the efficacy of alcaftadine compared to olopatadine in allergic conjunctivitis patients.

II. Methods And Materials

This is a prospective study conducted from august 2019 for 6 months on patients attending ophthalmology OPD of CAIMS, Karimnagar.150 subjects are included in study. All patients with allergic conjunctivitis are taken. Patients with active ocular infection (bacterial, fungal or viral), ocular surgeries within 3months or refractive surgeries within 6months, previous history of usage of anti-allergic drugs are excluded from the study.

Subjects are divided into 3groups, each group contain 50 patients and given topical anti-allergic medication

Group I: Topical placebo
Group II: Topical 0.25% Alcafatadine eyedrops

Group III: Topical 0.2% olopatadine eyedrops

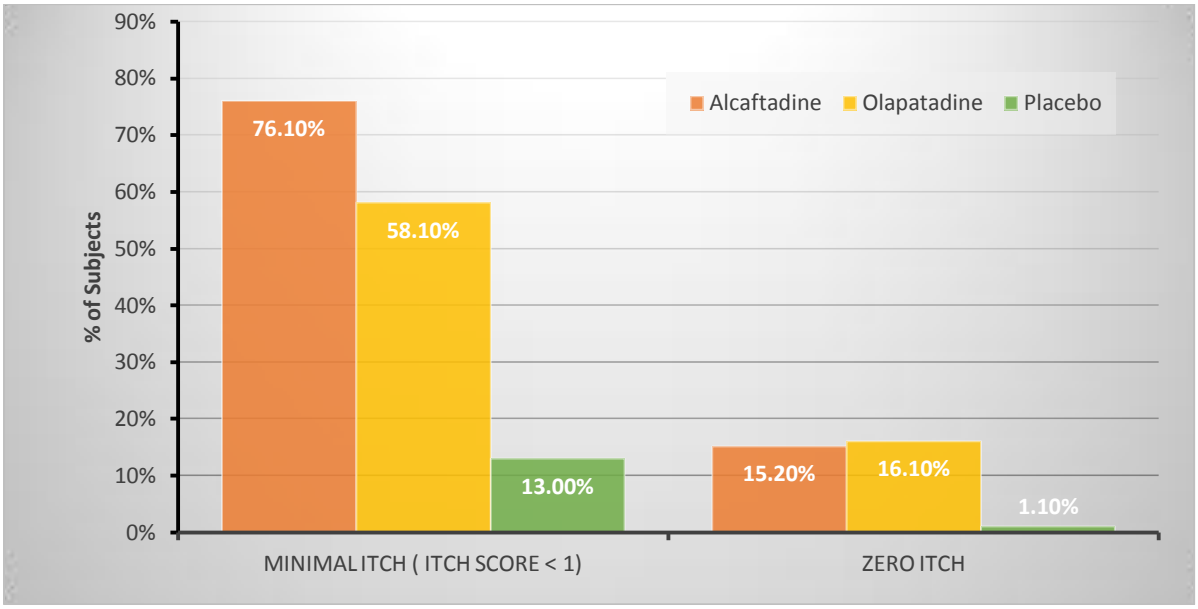
For uniform grading of symptoms and signs at each visit, we used scoring scales with 0 indicating no itch and 3 indicating constant desire to itch, Ocular redness and discharge were scored using 5-point scale (0–4), where 0 indicated no redness or no discharge and 4 indicated severe redness or copious discharge and upper tarsal papillae were graded using 4-point scale (0–3) with 0 indicating no papillae and 3 indicating predominance of giant papillae.

Before starting the treatment, score of symptoms and signs of each patient is noted. The instillation of the first eyedrop of anti-allergic medication was done in the outpatient department and score of signs and symptoms are noted. Patients were on follow up.

III. Results

MEAN OCULAR ITCH SCORE			
	ALCAFTADINE	OLAPATADINE	PLACEBO
BASELINE	2.65	2.48	2.69
16H POST DOSE	0.5	0.87	2.07

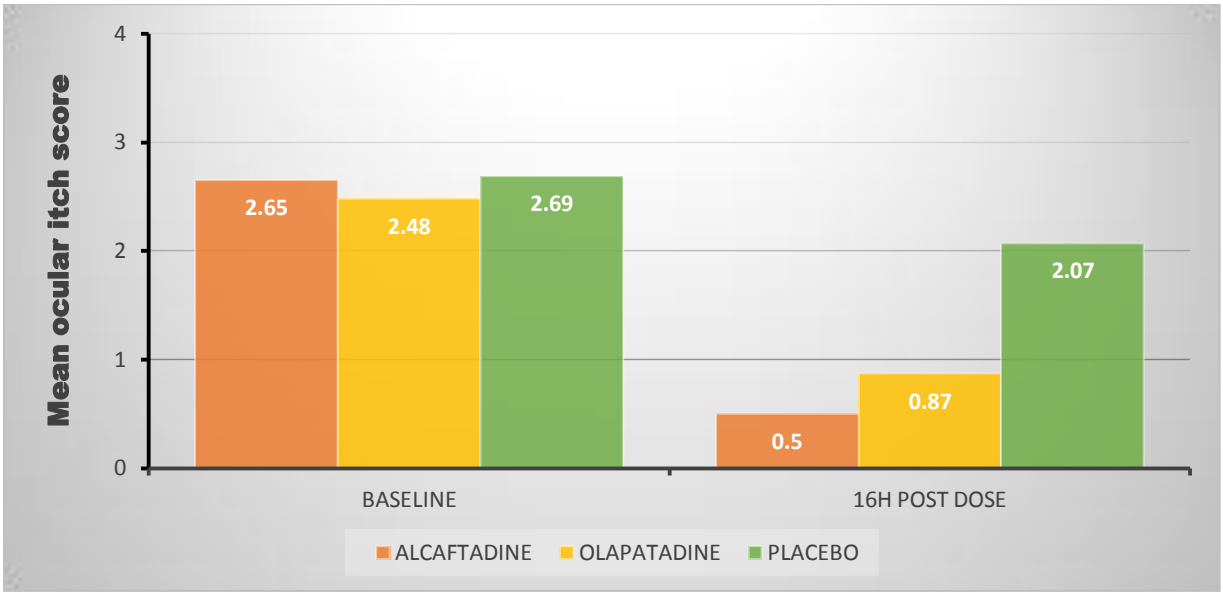
% of subjects			
	Alcaftadine	Olapatadine	Placebo
Minimal itch (Itch score < 1)	76.10%	58.10%	13.00%
Zero itch	15.20%	16.10%	1.10%



A total of 150 subjects were enrolled in study. At baseline and 16 h after treatment instillation, alcaftadine 0.25% achieved a significantly lower mean itch score compared with olopatadine 0.2% (0.50 vs .0.87,respectively; P=0.0006). Alcaftadine demonstrated a significantly lower mean itch score over all time (7days and 15days)

compared with olopatadine (0.68 vs. 0.92, respectively; P=0.0390); both alcaftadine- and olopatadine-treated subjects achieved significantly lower overall mean ocular itching scores compared with placebo (2.10; P<0.0001 for both actives). Minimal itch over all time was reported by 76.1% of alcaftadine-treated subjects compared with 58.1% of olopatadine-treated subjects (P=0.0121). Treatment with alcaftadine 0.25% and olopatadine 0.2% was safe and well tolerated; no serious adverse events were reported.

Comparison of overall percentage of subjects with minimal itch and zero itch scores at 16 h after treatment instillation. Percentage of subjects with minimal itch (itch score <1) and zero itch for alcaftadine 0.25%, olopatadine 0.2%, and placebo.



Comparison of mean itch scores at baseline and 16 h after treatment instillation.
Mean itch scores for alcaftadine 0.25%, olopatadine 0.2%, and placebo. *P < 0.0001 for alcaftadine and olopatadine versus placebo; **P = 0.0006 for alcaftadine versus olopatadine. P values calculated using the two-sample t test

IV. Conclusion

Once-daily alcaftadine 0.25% ophthalmic solution demonstrated greater efficacy in prevention of ocular itching compared with olopatadine 0.2% 16 h post-treatment instillation. Alcaftadine and olopatadine both provided effective relief compared with placebo and were generally well tolerated.

V. Discussion

Study was conducted to compare the efficacy and safety of alcaftadine 0.25%, olopatadine 0.2%, and placebo in relieving ocular itch and symptoms related to allergic conjunctivitis. alcaftadine 0.25%-treated subjects experienced significantly lower mean ocular itch scores than olopatadine 0.2%-treated subjects at 16h after treatment . In addition, alcaftadine 0.25% ophthalmic solution also was superior to olopatadine 0.2% ophthalmic solution in reducing mean itch scores over all times (7days and 15days). Both alcaftadine and olopatadine were superior to placebo at relieving ocular itch associated with allergic conjunctivitis .

Alcaftadine is unique among ocular antihistamines in that it exhibits antagonistic activity against H_1, H_2, and H_4 receptors (although with lower affinity than H_1 and H_2) The role of H_4 receptors in allergic conjunctivitis has not been fully elucidated; in vitro studies suggest that histamine binding to H_4 receptors mediates eosinophil chemotaxis. Alcaftadine 0.25% had a rapid onset of action which was superior to that of olopatadine 0.1%, and sustained duration of action.

Treatment with alcaftadine 0.25% and olopatadine 0.2% was found to be generally well tolerated. While eleven (3.9%) subjects experienced at least one adverse event, none of the adverse events were related to study treatment. In addition, there were no serious adverse events reported at any time during study.

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