

Allergic Conjunctivitis and Contact Lenses: Experience with Olopatadine Hydrochloride 0.1% Therapy

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ABSTRACT

Objective: The efficacy of Patanol[®], a topically applied anti-allergic agent, was evaluated in a group of patients with allergic conjunctivitis due to contact lens wear (GROUP I) and a group comprised of seasonal allergic conjunctivitis patients, vernal conjunctivitis patients and atopic keratoconjunctivitis patients (GROUP II).

Methods: One drop of Patanol[®] was administered to each eye twice daily. Signs and symptoms were assessed 7, 14, and 28 days after initiation of drug therapy.

Results: Itching/burning, tearing, hyperemia and papillary reaction were reduced to scores of 0/1 (absent/mild) in 85%, 90%, 81% and 62%, respectively, of GROUP I patients at Day 28. The allergic conditions in GROUP II patients also improved with Patanol[®] treatment. Itching/burning, tearing, hyperemia and papillary reactions were absent/mild in 60%, 76%, 96% and 90%, respectively, of these patients at Day 28.

Conclusion: Patanol[®] treatment effectively and rapidly alleviated the signs and symptoms of allergic conjunctivitis due to contact lens wear as well as vernal conjunctivitis, atopic keratoconjunctivitis and the common seasonal allergic conjunctivitis. Patanol[®] allowed allergic patients to be more comfortable while permitting them to continue using contact lenses.

Key words: allergic conjunctivitis – olopatadine – contact lenses.

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Introduction

Ocular allergies are among the external ocular conditions most commonly seen by ophthalmologists. The mechanism of action of these types of allergic conjunctivitis may be the following: the eyelids and the conjunctiva show a high number of mast cells, which are the primary inflammatory cells in ocular allergies. Mast cells contain in their granules preformed mediators such as histamine. Other mediators which are synthesized upon cell activation include prostaglandins and leukotrienes. Mast cell activation with the subsequent release of mediators oc-

curs when the IgE molecules, present on the surface of mast cells, bind antigen. This antigen often comes from the environment. In ocular allergy, other cells such as eosinophils, neutrophils, and lymphocytes (1–3) also play a role.

There are many clinical presentations grouped under the term allergic conjunctivitis. These include

- Seasonal allergic conjunctivitis
- Vernal conjunctivitis
- Atopic keratoconjunctivitis
- Giant papillary conjunctivitis (related to the use of contact lenses)

These conditions have common symp-

toms – burning, itching, foreign body sensation, photophobia, tearing – and signs – secretion, papillae, bulbar congestion, limbic infiltrates and, occasionally, epithelial ulcers.

Many treatment options exist for these conditions. Most of these treatments provide some clinical improvement.

Topical olopatadine HCl, 0.1% (Patanol[®]) is a new dual-action drug (4, 5), which prevents mast cells from degranulating and blocks histamine H₁ receptors. Recent studies have demonstrated that Patanol[®] is efficacious in seasonal allergic conjunctivitis (6, 7), but we have not found any data regarding the efficacy of Patanol[®] among contact lens wearers.

The objective of this study was to evaluate the efficacy of Patanol[®] in contact lens wearers (Group I) compared to non-contact lens wearers (Group II). There are no studies describing how patients with allergic conjunctivitis due to contact lens wear respond to topical Patanol[®]. We believe this study can give an objective idea as to whether this kind of patient improves with Patanol[®] therapy.

Material and Methods

One hundred and two (102) patients with different allergic conditions were selected and placed into two groups:

- Group I: Patients wearing contact lenses (52), who for different reasons showed symptoms of lens rejection and intolerance to their wearing (soft lenses).
- Group II: Patients not wearing contact lenses (50), who showed objective

and subjective symptoms of allergic conjunctivitis, not limited to seasonal allergic conjunctivitis.

Patients presenting with other ocular conditions were excluded from the study.

During the ocular examination visual acuity, intraocular pressure, and refraction were measured. The following signs and symptoms were evaluated:

Symptoms	Signs
Burning	Secretion
Itching	Papillae
Foreign body sensation	Redness
Photophobia	Limbic infiltrates
Tearing	Epithelial ulcers

Symptoms were scored from 0 to 3 according to the patient's evaluation and signs were scored from 0 to 3 in accordance with the ophthalmologic examination.

Allergic history such as asthma, rhinitis, hay fever, known allergy to contact lenses, and atopic eczema was taken and evaluated. Patients were given Patanol® at a dosage of 1 drop in each eye twice daily. Contact lens wearers were given the morning drop 90 minutes before wearing lenses and the second drop was given 8 hours later, after the removal of the contact lens.

Follow-up visits took place 7, 14 and 28 (+/-2) days after the beginning of drug therapy.

Results

Group I

Patients in this group presented with allergic conjunctivitis due to contact lens wear. All patients presented at the beginning of therapy with intolerance to contact lens wear characterized by papillary reaction scores of 2 to 3, hyperemia and mucous secretions. Subjective assessments of tearing, photophobia and foreign body sensation were also recorded. Patient improvement data for itching/burning, tearing, papillae and redness are shown in Figure 1.

All 52 patients showed marked and progressive subjective improvement, with symptom reduction noted within 7 days after beginning Patanol® treatment. Itching/burning and tearing were resolved within the first 7 days of therapy as dem-

onstrated by the dramatic drop in the number of patients with scores of 3 (severe) and the consequent increase in the number of patients with scores of 0/1 (absent/mild). There was no increase in the number of patients with scores of 2 for these parameters, indicating rapid resolution of these symptoms.

Papillary reaction and hyperemia also regressed with therapy. There was complete control of redness with time of therapy while the papillary reaction was reduced to a score of 0/1 in approximately 62% of the patients by the end of therapy. There was a more gradual regression of the papillae than of the other signs and symptoms assessed. This was evidenced by an increase in the number of patients with scores of 2 seven days after initiation of therapy, indicating a beneficial drug effect lowering scores from 3 to 2. However, additional treatment days were required to achieve papillary reaction scores of 0/1. The reaction, although reduced, did persist in approximately 40% of the patients.

Twelve of the 52 patients in this group did not improve objectively with therapy. We found that the main causes of treatment failure were poor oxygenation of the cornea, preservatives of the contact lens cleaning solutions, contact lens pro-

teinization and negligent contact lens care.

Group II

Thirty-five (35) of the 50 patients in this group had seasonal allergic conjunctivitis, 4 had vernal conjunctivitis and 11 had atopic keratoconjunctivitis. Eighty percent (80%) of these patients had a history of non-ocular allergic conditions such as asthma, hay fever, and rhinitis. They had all been previously treated with other medications. However, they stated that they only improved with systemic corticosteroid therapy.

Patient improvement data for itching/burning, tearing, hyperemia and papillary reaction are presented in Figure 2. Dramatic improvements in subjective symptoms and objective signs were observed after the first week of Patanol® treatment. The number of patients with papillary reaction scores of absent/mild (0/1) increased to 46% within this first week. Continued improvement in this difficult-to-treat sign was observed throughout the study. Eventually 96% of the patients in Group II had absent/mild papillary reactions. Hyperemia dramatically regressed with Patanol® therapy. None of the patients had absent/mild (0/1) hyperemia at the time of enrollment. Sixty per-

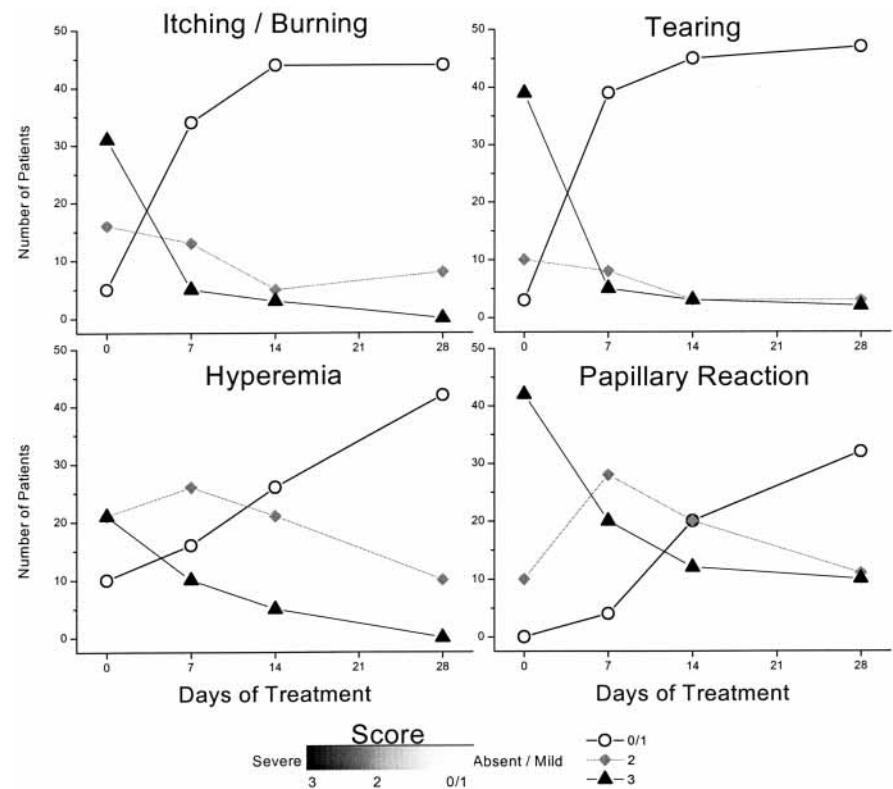


Fig. 1. Clinical efficacy of Patanol® on allergic conjunctivitis due to contact lens wear.

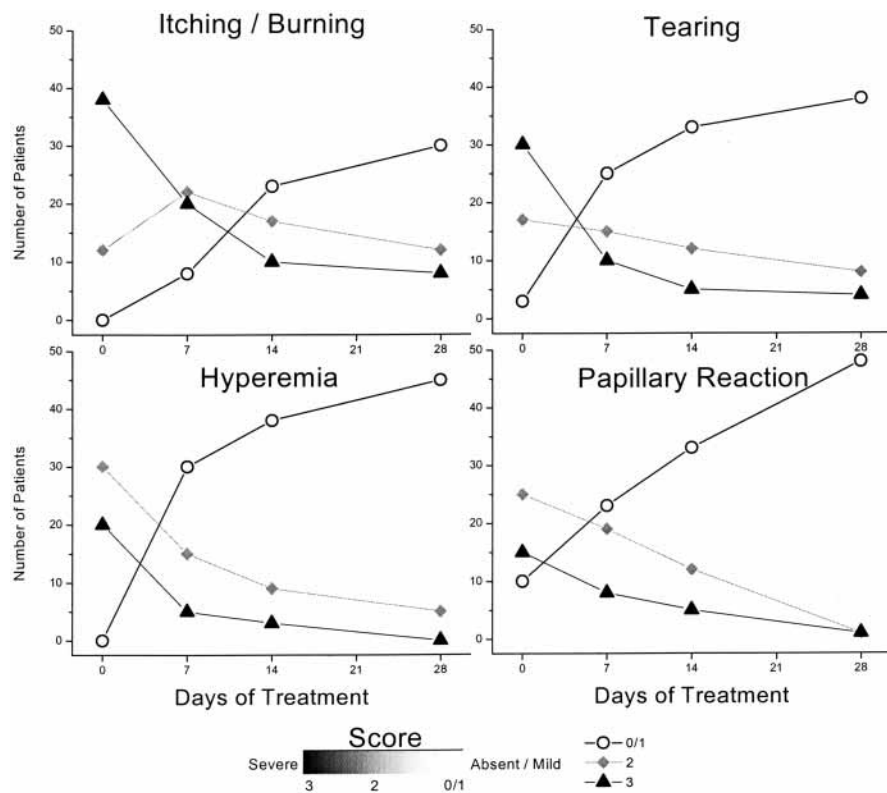


Fig. 2. Effect of Patanol® on signs and symptoms of allergic conjunctivitis in non-contact lens wearing patients.

cent (60%) of the patients had scores of 0/1 at Day 7 following initiation of therapy. Scores for hyperemia at the conclusion of the study were absent/mild in 90% of the treated patients. Similarly, itching/burning and tearing were also dramatically and rapidly reduced in Group II patients. After two weeks of treatment, clinical conditions improved both objectively and subjectively in 90% of the treated patients.

Only 2 patients (4%) in Group II did not have significant improvements. One was an 11-year-old male with severe vernal conjunctivitis. Treatment with Patanol® provided slight improvement.

Discussion

Many patients associate allergic conjunctivitis with other allergic diseases such as asthma, hay fever, eczema. However, the use of contact lenses, either due to the mechanical factor itself or to the chemicals used to clean and preserve them, may cause an allergic reaction similar to other types of conjunctivitis.

Many drugs have been used for the treatment of both the acute and chronic

phases of allergic conjunctivitis. Topical corticosteroid therapy is an effective treatment; however, ocular safety concerns including IOP elevation, scleral thinning, and cataract formation limit the use of corticosteroids. Other medications used include sodium cromoglycate and lodoxamide, purported mast cell stabilizers that do not cause a significant IOP rise, but are slow-acting, and require constant use and high concentrations to be effective (8, 9). Lodoxamide is regarded as superior to cromoglycate and has offered better results thus far (9).

Other drug therapies include topical and systemic antihistamines and systemic corticosteroids, with their characteristic unwanted effects. Systemic antihistamines administered alone may not be as effective at attenuating ocular signs and symptoms of ocular allergy compared to topical Patanol® (10).

This study assessed the efficacy of a new drug, Patanol®, which has three mechanisms of action (4, 11):

1. Stabilizes mast cells and prevents their degranulation.
2. Inhibits the histamine action, which is the major chemical mediator respon-

sible for a majority of the symptoms observed in this condition (7).

3. Inhibits pro-inflammatory cytokine production by ocular surface epithelium.

Twice daily instillation of Patanol® proved to be very convenient, especially in children wearing contact lenses. We did not observe any contact lens deterioration after one-year instillation of Patanol®.

Rapid positive clinical results in patients with histories of problematic response to therapy were observed in 96% of the cases.

In our practice we prescribe 10 new contact lenses weekly and a high percentage of these are for children. Topical Patanol® is indicated for children 3 or more years of age, unlike antihistaminic drugs (12). We use Patanol® not only as a treatment, but also as a prevention, because we believe that this drug increases contact lens tolerance with no deterioration of the lenses.

Conclusions

Patanol® is an excellent choice for the acute as well as for the chronic cases of allergic conjunctivitis and contact lens rejection. Significant improvements in symptomatology were noted in our patients and no adverse events were observed, in contrast to other drug treatments we have employed.

Contact lens wear creates several treatment challenges such as poor lens hygiene, proteinization of the lens, fungal infections, and poor corneal oxygenation. Patanol® therapy did not alleviate problems in patients that did not periodically clean their lenses. Patanol® did allow allergic patients to be more comfortable, while permitting them to continue using contact lenses.

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