

ORIGINAL ARTICLE

Efficacy of Supratarsal Triamcinolone Injection versus Dexamethasone in Recalcitrant Vernal Keratoconjunctivitis

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ABSTRACT

Aim: To determine the effectiveness of supratarsal triamcinolone injection versus dexamethasone in recalcitrant vernal keratoconjunctivitis.

Study Design: Prospective/randomized study

Place and Duration of Study: Department of Ophthalmology, Loralai Medical College, Loralai from 1st October 2020 to 31st March 2021.

Methods: Fifty patients (100 eyes) of both genders and age between 12-40 years were enrolled. Detailed demographics of enrolled cases age, sex and body mass index were recorded after taking informed written consent. All patients had recalcitrant vernal keratoconjunctivitis. Patients were equally divided into 2-groups. Group I had 25 patients and received 20mg of supratarsal triamcinolone injection in both eyes and group II with 25 patients received 2mg of dexamethasone in their eyes. Postoperative effectiveness, complications and recurrence of disease was observed and compared among both groups.

Results: There were 15 (60%) males and 10 (40%) females in group I with mean age 18.14 ± 6.34 years while in group II, 15 (60%) males and 10 (40%) females with mean age was 17.68 ± 4.54 years. Palpebral vernal keratoconjunctivitis was found in 36 eyes (10 patients of group I and 8 patients of group II) and Mixed vernal keratoconjunctivitis in 64 eyes (15 patients of group I and 17 patients of group II). Symptoms were itching, photophobia, lacrimation and pain. Conjunctival hyperemia, giant papillae and limbal infiltrate were the most common signs observed. Post operatively effectiveness among group I and II was (100% vs 92%) without any complication. Recurrence rate of vernal keratoconjunctivitis in group I was lower 4% as compared to group II 10%.

Conclusion: The use of supratarsal triamcinolone injection in patients of recalcitrant vernal keratoconjunctivitis was effective and safest method as compared to dexamethasone in terms of less recurrence and high rate of efficacy.

Keywords: Supratarsal triamcinolone, Dexamethasone, Vernal keratoconjunctivitis, Effectiveness, Recurrence

INTRODUCTION

In children and adults, vernal keratoconjunctivitis (VKC) is a severe form of allergic conjunctivitis that occurs on a seasonal basis.¹ Severe itching, photophobia, redness, and a persistent discharge are among the symptoms of this condition. Diagnosis relies on the presence of upper tarsal conjunctiva with cobblestone papilla and limbal conjunctival hypertrophy with gelatinous nodules. Scarring, shield ulcers, and pannus are all signs of corneal involvement. Sometimes VKC is accompanied with atopy, which manifests as atopic skin conditions, allergies to pollen, and food allergies. Fortunately, for the vast majority of children, the illness is curable within 2-10 years. A potentially blinding disease or medication-related problems can occur in eyes with resistant and commonly recurring VKC. Some of the most common symptoms in these resistant advanced VKC eyes are corneal shield ulcers and vascularization, as well as plaque formation and evidence of steroids misuse.²

Inflammatory illnesses of the ocular surface, ranging in severity from moderate to severe, are classified as allergies of the eye. The term allergic conjunctivitis includes seasonal conjunctivitis, perennial conjunctivitis, atopic keratoconjunctivitis (AKC), vernal keratoconjunctivitis (VKC), and giant papillary conjunctivitis (GPC).^{3,4} Atopic keratoconjunctivitis and vernal keratoconjunctivitis are the most severe forms of corneal scarring, irregular astigmatism, and keratoconus because of the possibility for vision impairment.^{5,6} While corticosteroid-induced glaucoma and cataracts are also potential causes of blindness, some patients have such severe clinical presentations and recurrences that the usage of glucocorticosteroids is essential to control their illness.

Allergies of the eye can be treated using topical and/or systemic medications, along with preventive measures including avoiding exposure to allergens that trigger the allergy. Cold compresses, preservative-free artificial tears, topical nonsteroidal anti-inflammatory medications, and topical antihistamines/mast cell stabilizers can be used for milder cases. Antihistamines/mast cell stabilizers and topical or systemic corticosteroids are used to treat more severe symptoms, either as intensive short-term therapy or as long-term treatment regimens in more severe cases. When corticosteroid use is contraindicated, immunomodulators such as cyclosporine A and tacrolimus are used to treat steroid-dependent allergic keratoconjunctivitis. In extreme situations of persistent corneal damage, surgery, such as removal of the large papillae, may be required.^{7,8} Even when patients are using systemic immunosuppressants, they may still have difficulty controlling their condition. This may be due to cessation or low compliance to the medication due to its frequent administration and/or high cost.

Patients with enormous papillae, extensive limbal involvement, or a corneal shield ulcer may not respond well to traditional treatment techniques for severe VKC. New therapeutic drugs have recently been used in the treatment of resistant VKC. Suprofen, topical mast cell stabilizers Nedocromil and Lodoxamide, topical immunomodulators Cyclosporine and Levocabastine as well as ganglioside derivatives are some examples of topical non-steroidal anti-inflammatory drugs (NSAIDs).⁹⁻¹² (Miprogoside)¹³. However, the majority of these newer therapy techniques have been proven to be ineffective in the majority of cases. But tarsal cobblestone and shield ulcers are mostly unchanged by systemic aspirin therapy, which reduces certain symptoms but leaves others untouched.¹⁴ In severe and refractory VKC, supratarsal injections of corticosteroids have been observed to be successful.¹⁵⁻¹⁸

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The current study tested supratarsal injection of triamcinolone and dexamethasone as a treatment option in difficult cases of recalcitrant VKC.

MATERIALS AND METHODS

This prospective/randomized study was conducted at Department of Ophthalmology, Loralai Medical College, Loralai from 1st October 2020 to 31st March 2021 and comprised of 50 patients with 100 eyes after permission from IRB. Patients detailed demographics age, sex and body mass index were recorded after taking informed written consent. Patients had history of contact lens wear and those did not give written consent were excluded. All patients had recalcitrant VKC with age ranges 12-40 years. Patients were equally divided in two groups. Group I had 25 patients and received 20mg of supratarsal triamcinolone injection in both eyes and group II with 25 patients received 2mg of dexamethasone in their eyes. As a topical anesthetic, 4 percent lidocaine hydrochloride was administered every minute for four minutes during the injection. For roughly 60 seconds, the upper lid was gently everted, and a cotton-tipped applicator soaked in 4 percent lidocaine was rubbed over it. Following this gentle lift, a 26 gauge needle was inserted in the supratarsal area between conjunctiva and Müller's muscle, 1 mm above the superior tarsomedial boundary.

The blood vessels on the margins were avoided at all costs. An injection of 0.25 ml of lidocaine hydrochloride followed by either 2 mg of dexamethasone or 1 mg of triamcinolone acetonide (20 mg). Conjunctival and Muller's muscle space ballooned, indicating a successful injection. Everyone was injected in both eyes simultaneously. Patients were monitored for alleviation of symptoms and remission of clinical indicators. Postoperative effectiveness, complications and recurrence of disease was observed and compared among both groups. Complete data was analyzed by SPSS 20.

RESULTS

There were 15 (60%) males and 10 (40%) females in group I with mean age 18.14 \pm 6.34 years while in group II mean age was 17.68 \pm 4.54 years with 15 (60%) males and 10 (40%) females. Palprebral VKC was found in 36 eyes (10 patients of group I and 8 patients of group II) and Mixed VKC in 64 eyes (15 patients of group I and 17 patients of group II) [Table 1].

Table 1: Baseline details of enrolled patients (n=50)

Variable	Group I	Group II
Mean age (years)	18.14 \pm 6.34	17.68 \pm 4.54
Gender		
Male	15 (60%)	15 (60%)
Female	10 (40%)	10 (40%)
Clinical Details		
Mixed VKC	15 (30%)	17 (34%)
Palprebral VKC	10 (20%)	8 (16%)

Table 2: Pre-operative symptoms and signs of disease among patients (n=50)

Variable	No.	%
Symptoms		
Itching	50	100.0
Photophobia	48	96.0
Lacrimation	45	90.0
Pain	9	18.0
Signs		
Conjunctival hyperemia	49	98.0
Limbal infiltrate	40	80.0
Trantas Dots	38	76.0
Giant papillae	20	40.0
Shield Ulcer/Keratitis	7	14.0

Table 3: Post-operative comparison of outcomes among both groups (n=50)

Variable	Group I	Group II
Effectiveness		
Yes	25 (100)	23 (92%)
No	-	2 (8%)
Recurrence		
Yes	1 (4%)	3 (12%)
No	24 (96%)	22 (88%)

Symptoms were itching, photophobia, lacrimation and pain. Conjunctival hyperemia, giant papillae and limbal infiltrate were the most common signs observed (Table 2).

Post operatively effectiveness among group I was 100% greater than that of group II 92% with no any severe complication. Recurrence rate was lower in group I 4% as compared to group II 12% (Table 3).

DISCUSSION

This type of inflammation is extremely frequent in tropical climates. Patients with recalcitrant diseases, on the other hand, are those who do not respond to the normal treatment regimen. Unfortunately, the disease-related or treatment-related consequences that result in irreversible ocular morbidity and blindness are unavoidable in these stubborn eyes. Surface antiallergy agents and steroid eye drops are used to treat severe VKC, as are oral steroids and cyclosporin.¹⁸ In the case of severe VKC, these traditional medications are unsuccessful. Poor compliance with topical or systemic treatments is another factor contributing to poor disease control. An important therapy approach is the injection of triamcinolone acetonide into the supratarsal region of severely affected patients. As a result, symptoms & indicators improve quickly.¹⁹

In this prospective study 50 patients with 100 eyes were presented. Patients were aged between 12-40 years. Mean age was 18.14 \pm 6.34 years. Majority of the patients 30 (60%) were males and 20 (40%) were females. These findings were comparable to the previous studies.²⁰ Symptoms were itching, photophobia, lacrimation and pain. Conjunctival hyperemia, giant papillae and limbal infiltrate were the most common signs observed.²² Patients were equally divided into 2-groups. Group I had 25 patients and received 20mg of supratarsal triamcinolone injection in both eyes and group II with 25 patients received 2mg of dexamethasone in their eyes.

We found in this study that effectiveness of supratarsal triamcinolone injection was greater 100% as compared to dexamethasone 96%. There was no any complication found among both groups. These results were comparable to the previous studies in which use of triamcinolone injection was the safest treatment for VKC.^{23,24} Recurrence rate was lower in group I 4% as compared to group II 12%.^{19,25} Whereas a research by Holsclaw et al²⁶ found no recurrence following supratarsal injection of triamcinolone acetonide. This discrepancy in different research may be attributable to immunological state of our patients and climatic changes in habitat of our patients.

Extended topical steroid therapy can lead to problems such as cataracts and glaucoma, which isn't recommended for children. In one trial, patients treated with extended corticosteroids demonstrated steroid response, but 5.5% developed glaucoma, requiring trabeculectomy with mitomycin C.²¹ Steroid injections for VKC have been associated with an increase of intraocular pressure (IOP), however this was not observed in our patients, which agrees with a study by Sadiq and colleagues.²⁷ Topical eye drops were not used for an extended period of time, avoiding the debilitating side effects of topical steroids, such as cataracts and glaucoma. When it comes to long-term treatment of the condition, injections are more reliable than topical eye drops since they are more consistent. It eliminates the challenges associated with

topical eye drops, such as patient compliance issues and difficulties administering eye drops.

In the present study, a supratarsal injection containing 20 mg of triamcinolone acetonide demonstrated satisfactory outcomes and was well tolerated by patients, suggesting that this treatment may be a viable choice for severe and problematic cases. Symptoms and indicators of ocular allergy were much improved, and the frequency of acute recurrences was reduced, but the disease was not completely cured.

CONCLUSION

The use of supratarsal triamcinolone injection in patients of recalcitrant vernal keratoconjunctivitis was effective and safest method as compared to dexamethasone in terms of less recurrence and high rate of efficacy.

Conflict of interest: Nil

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