Original Article

SUPRATARSAL INJECTION OF TRIAMCINOLONE ACETONIDE IN THE TREATMENT OF REFRACTORY VERNAL KERATOCONJUNCTIVITIS

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BACKGROUND—*Vernal keratoconjunctivitis (VKC) cases are often resistant to conventional treatments. We aimed to assess the effect of supratarsal injection of triamcinolone acetonide in these patients.*
PATIENTS AND METHODS—*Sixteen patients (32 eyes) with severe VKC, and resistant to conventional method of treatments were selected and underwent injection of 0.5 mL triamcinolone acetonide in supratarsal area (in conjuctival side of upper lid) and were followed up for 54 months. The results were analyzed with SPSS program with 95% confidence interval.*
RESULTS—*Relief of symptoms (burning, itching, lacrimation and photophobia, ropy discharge) was dramatically seen in all patients, in first few days. Size of giant papillae, thickening of limbus, vascularization of cornea (pannus) decreased in the first month. Recurrence of disease was seen in 2 (12.5%) patients after one month. No complication was noticed during the follow up. All patients tolerated the treatment well.*
CONCLUSION—*Rapid and dramatic symptomatic and clinical response, and lack of complications suggest that supratarsal injection of triamcinolone acetonide could be a thrapeutic approach for refractory VKC.*

Keywords: ***vernal keratoconjunctivitis; triamcinolone acetonide; tarsus.***

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INTRODUCTION

Allergic vernal keratoconjunctivitis (VKC) is a bilateral inflammatory disease of conjunctiva which affects children and young adults.[1] About 1 – 2.5% of ophthalmology visits in outpatient clinics have vernal keratoconjunctivitis.[1 – 3] Wide range of therapeutic modalities are currently available for the treatment of VKC. Milder cases can be treated with cold compresses, artificial tears, topical vasoconstrictors, or topical antihistamines.[1] More severe cases may need topical nonsteroidal anti inflammatory drugs (NSAID), or topical steroids, mast cell stabilizers, or even oral steroids and cyclosporin. More recently, topical ketotifen fumarate, mipragoside levocabastatine hydrochloride, lodoxamide tromethamine, excimer laser, and surgical therapy have also been used.[4 – 11] These conventional methods of treatment may not be effective in patients with giant papillae, severe limbal involvement, or corneal shield's ulcer. And therefore, the patients are severely debilitated and can not live their daily routine.[4 – 14]

Because of ineffective conventional therapeutic methods, absence of adequate studies on the effectiveness of intermediate acting steroids in treatment of refractory vernal keratoconjunctivitis, and complications of long-term steroids (such as ptosis, mydriasis, glaucoma and cataract), we used supratarsal injection of triamcinolone acetonide for control of this disease in refractory cases.

PATIENTS AND METHODS

Sixteen patients (32 eyes) with severe VKC, and resistant to conventional method of treatments were selected and underwent injection of 0.5 mL triamcinolone acetonide in supratarsal area (in conjuctival side of upper lid) and were followed up for 54 months. Patients were first treated with a combination of prednisolon acetate 1% drop q2 h, naphazoline antazoline drop q6 h, cromolyn sodium 5% drop q6 h, and in some cases ciprofloxacin 1% drop q6 h, for at least one week. Sixteen cases (32 eyes) responded only minimally to the treatment and so were scheduled for triamcinolone acetonide injection into supratarsal area. None of the patients were treated with oral prednisolon, cyclosporine,

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topical lodoxamide tromethomine, ketorolac tromethamine, or nonsteroidal antiinflammatory drugs.

Patients with ongoing symptoms such as severe itching and thick ropy discharge, photophobia, and lacrimation that interfered with their daily activity, were scheduled for study. In ocular examination, giant papillae, corneal shield's ulcer, and progressive limbal vascularization were present. Before injection of drug, infected cases (corneal ulcer and blepharoconjunctivitis) were properly treated. Informed consent was taken after complete discription of the procedure and its purpose to the patient and their parents. One drop of tetracaine 0.5% instilled in the eye of the patient, in supine position.

One minute later the upper lid was gently reverted, and with a cotton-tipped applicator, soacked with tetracaine, and more sedation was induced in palpebebral conjuctiva especially in upper border of superior tarsus. Then 0.5 mL of triamcinolone acetonide (20 mg drug) was injected in potential space between conjunctiva and Muller's muscle, 0.5 – 1 mm superior to upper edge of tarsus, with 27 gauge needle. Lid returned to normal position and all topical medications were discontinued. Patients were followed-up in the first, second, and fourth week after injection, and symptoms and signs were evaluated and results recorded. Follow-up was continued in 3, 6, 12 months and then annually. The findings of ocular examination were recorded in the questionnaire and the results were analyzed with SPSS program with 95% confidence interval.

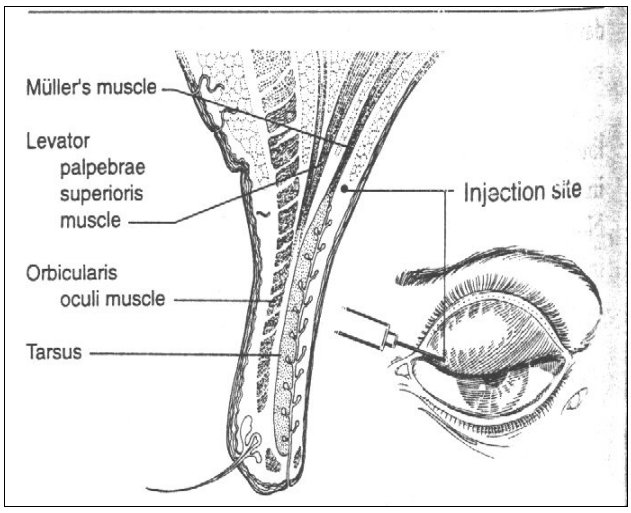

Figure 1. Injection site about 0.5 – 1 mm above the superior tarsal border in potential space between conjunctiva and Muller's muscle. The schematic drawing (Holsclaw and associates) illustrates method and site of injection.

RESULTS

Sixteen patients (32 eyes) with refractory VKC were treated in spring 1996, with an intermediate acting corticosteroide and triamcinolon acetonide, in Mattinii Hospital and were followed-up for 54 months. Eleven (68.7%) patients were male and 5 (31.3%) were female, with mean age of 12.8 ± 3.9 years (range, 8 – 23). Fourteen (87%) patients were asymptomatic and in 2 cases (12.5%), VKC signs and symptoms were present.

One week after treatment, all symptoms, and 3 – 4 weeks later all signs (giant papillae, Trantas' dots, shield's ulcer) were improved dramatically. In 2 (12.5%) patients, one month after the injection, signs and symptoms gradually recurred and injection of steroid was repeated but no response was seen. Twelve months after the injection, in 3 (18.7%) cases, despite the reinjection of triamcinolone acetonide, no dramatic response was seen and so, topical drops were continued. Recurrence of signs and symptoms (Hyperemia of conjunctiva, giant papillae, itching and lacrimation) were evident in 2 (12.5%) of other cases, after 24 months in spring, which were managed with topical drops. All patients tolerated the procedure without problem. In 54 months of follow-up, no complications of steroid were seen in 16 patients.

Table 1. Frequency of symptoms before treatment in 16 patients with refractory VKC in Mattinii Hospital in Kashan, in 1996.

Symptom	Number (%)
Itching	16 (100)
Lacrimation	14 (87.5)
Photophobia	13 (81.2)
Pain	13 (81.2)
Mucus discharge	7 (44)

Table 2. Frequency of ocular signs before treatment in 16 patients with severe VKC, in Mattinii Hospital, in 1996.

Sign	Number (%)
Hyperemia of conjunctive	16 (100)
Giant papillae	16 (100)
Thickening of limbus	5 (312)
Superficial punktate keratitis	7 (44)
Shield's ulcer	2 (12.5)

Mean duration of the disease was 3.7 ± 0.9 years. Frequency of symptoms and signs and frequency of ocular signs before treatment are shown in Tables 1 and 2, respectively.

DISCUSSION

Treatment of severe VKC is a difficult problem for the patient and the physician. Due to debilitating symptoms and signs of VKC, patients need an effective treatment. Previously, severe cases of VKC were treated with cryotherapy or surgical excision of giant papillae that resulted in severe scaring and malfunction of lid.[3] Current medical treatment such as artificial tears, topical antihistamines, mast cell stabilizers (cromolyn sodium), NSAID, or topical steroids are not fully effective. More recently, new agents such as topical cyclosporine were used but after cessation of treatment, symptoms and signs recurred.[4 – 10]

This study showed that triamcinolone acetonide injection in supratarsal area can relieve signs and symptoms in 100% of patients but prevent recurrence of VKC only in 87.5% of cases ($p < 0.05$).

Douglas et al[15] in 1995 showed that they had no recurrence of VKC after short or intermediate acting steroids injection in supratarsal areas. This difference may be due to quality of medication and immunologic status of patients. In our study, after 54 months of follow-up (in 16 cases) we did not have any type of complications by steroid injection, but Douglas et al[15] reported having one case of intraocular pressure rise in 9% of the cases after steroid injection. VKC is more common and severe in spring. All of our cases referred to clinic during the 3 months of spring, perhaps due to the seasonal presence of more pollens and allergens in the environment.[1, 3]

The mean age of our patients was 12.8 ± 3.9 years (range, 8 – 23); in other studies the mean was 12 years.[2] The ratio of male to female was 2:1 in our study. In other reports, males were more affected than females, with 3:1 frequency.[2,3,15]

In all of the studies, symptoms and clinical signs of VKC were the same and in its pathogenesis multiple factors such as IgE, IgG, cell-mediated immunity, eosinophiles, and basophiles were involved.[3] In summary, we used supratarsal injection of triamcinolone acetonide in patients with severe refractory VKC applying topical anesthesia. The procedure is usually well tolerated even in young children; it provides prompt symptomatic relief in all patients, and has low recurrence rate (12.5%). The high rate of clinical response with lack of complication and yet easy method leads us to suggest that this therapeutic modality is an effective and safe method for treatment of refractory VKC. Controlled studies in large scales and at multiple centers are suggested.

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