ORIGINAL ARTICLE

MODALITIES OF MANAGEMENT OF VERNAL KERATOCONJUNCTIVITIS

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ABSTRACT: BACKGROUND: Ocular allergy is a common disorder which can be debilitating for patients and, at times, challenging for physicians to diagnose and treat. Allergic disease affects 30–50% of the population. Vernal kerato conjunctivitis has predilection for young age group and the diagnosis is generally based on signs and symptoms of the disease. This study is undertaken to stress upon the importance of clinical manifestations, management and prevent the complications of the disease and those secondary to its long-term medication. **AIM OF STUDY:** To study the different modalities in management of VKC patients. **MATERIALS & METHODS:** 74 patients with VKC selected at random, who attended the department of ophthalmology KIMS, Hubli from December 2012 to May 2014. The relevant details of history and clinical examination of the patients were recorded on a specifically designed Proforma. The type and severity of VKC and its association with corneal involvement was noted. Clinical observation and evaluation of clinical signs and symptoms were performed before and after drug therapy at first visit, weekly interval for 2 weeks and at the end of 3 months. Therapeutic options are many, in most cases topical and chosen on the basis of the severity of the disease. **RESULTS:** 68/74 (91.89%) patients were put on 0.1% olopatadine eye drops 2 times a day at 0 visit. Additional treatment such as 0.5% ketorolac 4 times a day in 13/68 patients, 0.1% bromofenac 2 times a day in 3/68 patients and 0.1% Napafenac 2 times a day in 1/68 patient was added along with olopatadine at visit 0. In 16/68 patients with persistent symptoms with olopatadine alone 0.5% ketorolac was added in subsequent visits. 15/68 patients with persistent symptoms received Flurometholone 0.1% in the subsequent visits along with 0.1% olopatadine. All these patients who received 0.5% ketorolac alone or with other drugs responded well. Fallow – up patients using 0.1% olopatadine showed that there were no side effects and majority of patients responded well. 29/74 (38.18%) patients were treated with topical corticosteroids. 20/74 patients were put on Flurometholone 0.1% 4 times a day. 5/20 patients with severe disease were put on Flurometholone at visit 0 and in remaining 15 patients were treated with Flurometholone in the subsequent visits. All patients responded well except for one patient who had giant papillae with mechanical ptosis required surgical management. 8/74 patients were treated with 0.2% Lotoprednol etabonate4 times a day in the visit 0, 6/8 patients had severe disease when they presented to the hospital. 4/8 responded well to treatment and 4/8 does not responded. Topical 1% cyclosporine A was used in 2 patients. Both the patients do not improve in the study period. 5 patients in this study were treated with systemic antihistaminic. 4/5 patients were feeling symptomatically better. One patient who was refractory to steroid eye drops was treated with 0.03% tacrolimus eye responded well. Mechanical resection of giant papillae was done in one patient and but patient had recurrence after 2months. Later treated with cyclosporine an eye drops and responded for

the therapy. **CONCLUSION:** The treatment of choice for mild to moderate VKC is a dual acting topical ocular medication (Mats cell stabilizing with antihistamine effect). Mild steroids in mild to moderate cases and potent steroids in severe cases help in rapid relief of symptoms, but should be used with caution. Preventive measures like avoidance of allergen, cold compression provides symptomatic relief. Artificial tear substitutes provide a barrier function and help to improve the first – line defense at the level of conjunctival mucosa. Systemic and or topical antihistamines may be given to relieve acute symptoms. Immuno modulators are helpful in refractory cases.
KEYWORDS: Vernal seasonal, topical, olopatadine.

INTRODUCTION: Ocular allergy is a common disorder which can be debilitating for patients and, at times, challenging for physicians to diagnose and treat. Allergic disease affects 30–50% of the population, while ocular symptoms are present in 40–60% of allergic individuals.

The term Vernal is derived from the Greek meaning 'occurring in the spring'. It has predilection for warm rather than cold climates with frequent family and personal history of atopic disease, a higher than 2:1 frequency in males over females, an early onset, with remission by the late teens and a hereditary predisposition with exogenous factors, such as climate, season, and allergen exposure, determining the likelihood and severity of this disease.

The diagnosis is generally based on signs and symptoms of the disease, but in difficult cases can be aided by conjunctival scraping, demonstrating the presence of infiltrating eosinophils.

Although various form of therapy can be used for symptomatic relief, there is no curative therapy. Chronic VKC in children is usually one of the difficult problems in management. The long term prognosis is generally good; however 6% of patients develop corneal damage, cataract, or glaucoma.[1]

AIM OF THE STUDY: To study the different modalities in management of VKC patients.

MATERIAL AND METHODS: 74 patients with VKC selected at random, who attended the department of ophthalmology Karnataka Institute of Medical Sciences, Hubli were the subjects of this study. The period of this study was from December 2012 to May 2014 (One and a half year study).

The relevant details of history and clinical examination of the patients were recorded on a specifically designed Proforma. The type and severity of VKC and its association with corneal involvement was noted.

The severity was graded as follows:

1. Mild; few symptoms, seasonal, small papillae, no corneal involvement.
2. Moderate; troublesome symptoms, almost perennial, with moderate sized papillae and no corneal involvement.
3. Severe; severe symptoms, perennial with large fleshy papillae and corneal involvement.

Ocular examination included testing of Visual Acuity, Ophthalmoscopy, Retinoscopy, Biomicroscopy, and recording of IOP with Applanation Tonometry and in selected cases Keratometry.

Clinical observation and evaluation of clinical signs and symptoms were performed before and after drug therapy at first visit, weekly interval for 2 weeks and at the end of 3 months. Each of the visits were designated as visit 0(first visit), visit 1(one week after visit 0), visit 2 (2 weeks after 0 visit), visit 3 (3 month after visit 0).

Therapeutic options are many, in most cases topical should be chosen on the basis of the severity of the disease. The most effective drug steroids should however be carefully administered, and only for brief period, to avoid secondary development of glaucoma and cataract.

INCLUSION CRITERIA: Patients with symptoms and signs suggestive of VKC.

EXCLUSION CRITERIA:

Allergic conjunctivitis due to Atopy.

Contact lens induced conjunctivitis.

RESULTS: In the present study 68/74 (91.89%) patients were put on 0.1% olopatadine eye drops 2 times a day at 0 visit. Additional treatment such as 0.5% ketorolac 4 times a day in 13/68 patients, 0.1% bromofenac 2 times a day in 3/68 patients and 0.1% Napafenac 2 times a day in 1/68 patient was added along with olopatadine at visit 0.

In 16/68 patients with persistent symptoms with olopatadine alone 0.5% ketorolac was added in subsequent visits. 15/68 patients with persistent symptoms received Flurometholone 0.1% in the subsequent visits along with0. 1% olopatadine. All these patients who received 0.5% ketorolac alone or with other drugs responded well. Fallow – up patients using 0.1% olopatadine showed that there were no side effects and majority of patients responded well.

At presentation, 29/74 (38.18%) patients were treated with topical corticosteroids. 20/74 patients were put on Flurometholone 0.1% 4 times a day. 5/20 patients with severe disease were put on Flurometholone at visit 0 and in remaining 15 patients were treated with Flurometholone in the subsequent visits. All patients responded well except for one patient who had giant papillae with mechanical ptosis required surgical management.

8/74 patients were treated with 0.2% Lotoprednol etabonate 4 times a day in the visit 0, 6/8 patients had severe disease when they presented to the hospital. 4/8 responded well to treatment and 4/8 does not responded. One patient treated with potent steroid 0.1% dexamethosone who had severe perennial form of disease and patient responded well. All patients were monitored regularly by checking IOP. All patients were treated with topical corticosteroids in the active stage of disease along with mast cell stabilizers or antihistaminic eye drops for long-term prophylactic use.

Supratarsal injections of corticosteroid were used in 2 patients to treat severe non-responding disease. After 2 minutes of 4% xylocain instillation a 26G, 5/8 inch needle was positioned in the supratarsal subconjunctival space and 10mg of triamcinolone acetonide was injected.

None of the patients receiving supratarsal steroid injection had post-treatment glaucoma. One responded well but other patient had recurrence after 1 month of Supratarsal injections of triamcinolone acetonide.

One patient with Shields ulcer was treated with,

1. Flurometholone 0.1% 4 times a day.
2. Olapatadine 0.1% 2 times a day.
3. Lubricating eye drop hourly.
4. Eye patching.
5. Debridement of mucus plaques. Patient responded well for the treatment and ulcer healed without any scarring.

Lubricating eye drops was added in 19/68 patients receiving olopatadine eye drops in subsequent visits for symptomatic relief.

Topical 1% cyclosporine A was used in 2 patients. Both patients had severe disease. Both the patients do not improve in the study period.

5 patients in this study were treated with systemic antihistaminic along with topical therapy in whom sever itching was main complaint. 4/5 patients were feeling symptomatically better fallowing systemic antihistamines.

Mechanical resection of giant papillae was done in one patient and but patient had recurrence after 2months. Later treated with cyclosporine an eye drops and responded for the therapy.

DISCUSSION: Vernal keratoconjunctivitis is characterized by different clinical features and therapeutic responses, suggesting the need for a standardized therapeutic approach on the basis of a grading of disease severity. Although preventive measures such as avoidance of allergen and cold compression helps to relive symptoms to some extent majority of patients require pharmacological treatment.

74 patients with VKC selected at random who fulfill the inclusion and exclusion criteria are included in the study. The type and severity of VKC and its association with corneal involvement was noted.

Therapeutic options are many, chosen on the basis of the severity of the disease. All patients were informed of the aims of the study. Response to treatment observed in terms of improvement in symptoms and signs. The first line treatment of choice for mild to moderate cases is a dual acting topical ocular medication (Mast cell stabilizing with antihistaminic effect). For moderate disease with intermittent or seasonal episodes, dual acting topical medication and mild steroids was used and in patients with severe disease (Cobblestone papillae or limbal deficiency with coarse erosions or shield ulcers) steroids in addition to mast cell stabilizers, lubricants and/or cyclosporine were used.

Recently, a new generation of drugs such as olopatadine, epinastine, ketotifen and azelastine has shown dual activity of mast-cell stability and H1 receptor antagonism. Olopatadine (0.1%) is a selective H1 antagonist with mast-cell-stabilizing properties. It decreases the mucus discharge in VKC by reducing the goblet cell density in the conjunctiva.[2,3]

Ketorolac may be a good alternative to topical steroid because it reduces itching by inhibiting the synthesis of prostaglandins.[4] Because of the side effects due to prolonged use of steroids, it is recommended that topical flurbiprofen be tried first and in case it is ineffective, it should be replaced by betamethasone.[5] Bromfenac sodium eye drops can be used as baseline local treatment in patients with VKC.[6]

Loteprednol is highly effective in the acute and prophylactic treatment of allergic conjunctivitis Fluorometholone is a soft corticosteroid and is effective in controlling the signs and symptoms of VKC. Desonide phosphate has been shown to be as effective as fluorometholone in the treatment of allergic conjunctivitis.[2]

Supratarsal injection of corticosteroids can be used to treat VKC refractory to conventional treatment. Supratarsal injection of dexamethasone sodium succinate, triamcinolone acetonide and hydrocortisone sodium succinate is effective in the temporary suppression of inflammation associated with VKC.[8]

Corneal shield ulcers and plaques are rare but serious complications of vernal keratoconjunctivitis, which may be unresponsive to standard medical therapy. Surgical debridement is a fast and effective procedure yielding rapid healing of the ulcer and minimizing complications, such as infections.[8]

Severe VKC responds promptly to topical cyclosporine A and tacrolimus, mostly within 1 month of therapy. Prolonged use of cyclosporine A and tacrolimus in VKC is safe and is tolerated by most patients without significant side effects. Topical cyclosporine is easily handled even by children, with safe and effective results even when it is used over a long period of time.[9]

Oral anti-histamines are a good choice when allergy involves the eyes, nose or pharynx simultaneously. The anti-inflammatory effect seen with pure anti-histamines like levocabastine and emedastine is attributed to the blocking of histamine receptors, thus down regulating the expression of ICAM-1 and limiting chemotaxis of inflammatory cells.[2]

Giant papillae can be removed by CO_2 laser. The procedure can be repeated if papillae recur.[10] Lubricating eye drops was added in 19/68 patients receiving olopatadine eye drops in subsequent visits for symptomatic relief. Topical lubricants may help in diluting the tears whose pH is abnormal as a result of the released cytokines and histamine.[11]

CONCLUSION: This study shows that vernal keratoconjunctivitis has early age of onset with higher than 2:1 frequency in males over females with frequent presentation during the spring and hot month (May).

The treatment of choice for mild to moderate VKC is a dual acting topical ocular medication (Mats cell stabilizing with antihistamine effect).

Mild steroids in mild to moderate cases and potent steroids in severe cases help in rapid relief of symptoms, but should be used with caution.

Preventive measures like avoidance of allergen, cold compression provides symptomatic relief.

Artificial tear substitutes provide a barrier function and help to improve the first – line defense at the level of conjunctival mucosa.

Systemic and or topical antihistamines may be given to relieve acute symptoms.

REFFERENCES:

1. BoniniS, Coassin M, AronniS, LambiaseA, "Vernal Keratoconjunctivitis" Eye 2004 AP: 18(4):145-51.
2. Kumar S. Vernal keratoconjunctivitis: a major review. Acta Ophthalmol. 2009; 87(2):133.
3. Corum I, Yeniad B, Bilgin LK, Ilhan R. Efficiency of olopatadine hydrochloride 0. 1% in the treatment of vernal keratoconjunctivitis and goblet cell density. J Ocul Pharmacol Ther. 2005; 21(5):400.
4. Sharma A, Gupta R, Ram J, Gupta A. Topical ketorolac 0. 5% solution for treatment of vernal keratoconjunctivitis. Indian J Ophthalmol 1997; 45:117.
5. Gupta S, Khurana AK, Ahluwalia BK, Gupta NC. Topical indomethacin for vernal keratoconjunctivitis. Acta Ophthalmol (Copenh). 1991; 69(1):95.
6. Uchio E, Itoh Y, Kadonosono K. Topical bromfenac sodium for long-term management of vernal keratoconjunctivitis. Ophthalmologica. 2007; 221(3):153.
7. Singh, S, Pal V, Dhull C S. Supratarsal injection of corticosteroids in the treatment of refractory vernal keratoconjunctivitis. IJO 2001; 49(4):241-5.
8. Ozbek Z, Burakgazi AZ, Rapuano CJ Rapid healing of vernal shield ulcer after surgical debridement: A case report. Cornea. 2006; 25(4):472.
9. Belfair N, Monos T, Levy J, Mcgill J I, Holgate S T, Church M K, Anderson D F. Allergic eye disease mechanisms bjo. 1998; 82:1203-1214.
10. Pucci N, Caputo R, Mori F, De Libero C, Di Grande L, Massai C, et al. Long-term safety and efficacy of topical cyclosporine in 156 children with vernal keratoconjunctivitis. Int J Imunopathol Pharmacol. 2010 Jul-Sep; 23(3):865-71.
11. Mnitentag H, Lifshitz T. Removal of giant vernal papillae by CO2 laser. Can J Ophthalmol. 2005 Aug; 40(4):472-74.

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