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RESEARCH ARTICLE

HYPOSENSITIZATION IMMUNOTHERAPY IN MANAGEMENT OF VERNAL KERATO CONJUNCTIVITIS

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ABSTRACT

Vernal keratoconjunctivitis (VKC) is a common clinical entity which causes considerable ocular morbidity. It is an external eye disease with recurrent attacks of exacerbation and remission caused by several external (and sometimes internal) allergens characterized by pink or red coloration of the eyes associated with itching, discomfort, burning sensation, swollen eyes and blurring of vision. It affects mainly children and early adulthood. Because of its chronicity, VKC needs continuous treatment with antiinflammatory drugs especially corticosteroids and because of their bad side effects, they are rendered an unpopular selection for longterm management. Immunotherapy by inoculation hyposensitization can be used as an effective alternative therapy in the management of VKC owing to its longlasting effect. **Objective:** To identify the commonest allergen(allergens) which cause eye sensitization in patients with VKC and manage them with inoculation hyposensitization in order to minimize the depending on steroid therapy and to getrid of their unwanted side effects.

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INTRODUCTION

VKC is an allergic reaction in the lining tissues of the eyes characterized by pink or red coloration with itching sensation and discomfort caused by allergic reaction to several antigens(allergens) with favouration to be seasonal in most cases especially during spring and summer due to normal seasonal increase in allergens (such as pollens) in the air. It can also be caused by an allergic reaction to other things such as chlorine in swimming pools, cigarette smoke, ingredients in cosmetics, and pet dander. Also the family history of atopy play a role. VKC is one manifestation of type I allergy, wherein antigen-antibody interaction on the surface of the mast cells leads to mediators release and their deleterious consequences. The treatment of VKC with topical corticosteroids preparations provides transient relief. Long term use of corticosteroid drops and ointments is associated with the risk of raised intraocular tension as well as cataract formation. Immunotherapy treatment by hyposensitization using prepared vaccines had an acceptable success rate especially in patients treated for 24 months.

MATERIALS AND METHODS

In this case series study, one hundred thirty patients (seventy seven males and fifty three females with age between

7-40 years) who attending the consultating clinic in ophthalmology department in Aljumhori teaching hospital at Mosul city who diagnosed as VKC were involved. They were underwent (skin prick test) and those with positive results (i.e developed formation of erythema, transient swelling, and itch at the site of inoculation) would followed by (Eliza Test) to estimate the total and specific IgE level to ensure the hypersensitivity to that allergen(allergens). The invitation to the participants in this study sample had been done. The investigators discussed with them the metod of treatment and possible side effects.

RESULTS

The study revealed that the commonest age of affection in male is childhood (6-15 years) 51 patients with percentage of (66.2 %), while in female is early adulthood (15-45 years) 30 patients with a percentage of (56.6 %). Most of our participants were complaining of photophobia, lacrimation, and itching. The commonest sign in our participants were limbal VKC 55 patients (42.3 %), tarsal VKC with cobble stone formation 35 patients (27 %), other signs 13 patients (10 %). The commonest allergen is mould 45 patients (34.6 %), tree allergen 29 patients (22.3 %), house dust mite 23 patients (17.7 %), house dust 22 patients (16.9 %), others 11 patients (8.5 %). This study revealed that the males are more sensitive to house dust and house dust mite allergens more than females.

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The best improvement was in photophobia 102 patients (79 %), lacrimation 100 patients (77 %), itching 85 patients (65.45 %), while the best improvement in sign was limbal VKC 40 patients (72.7 %), tarsal 25 patients (45.43 %). All these results are shown in Table 1 and 2.

Table 1. Distribution of cases by age and sex

Age (Year)	Male No. %	Female No. %	Total No. %
6 - 15	51 66.2	20 37.7	71 54.6
15 - 45	24 31.2	30 56.6	54 41.5
45 - 60	2 2.6	3 5.7	5 3.9
Total	77 59.2	53 40.8	130 100.0

Table 2. Distribution of cases according to the causative allergen by sex

Causative Allergen	Male No. %	Female No. %	Total No. %
Moulds	22 22.6	23 43.4	45 34.6
Tree	19 24.7	10 18.9	29 22.3
House dust mite	15 19.5	8 15.1	23 17.7
House dust	12 15.6	10 18.9	22 16.9
Others	9 11.7	2 3.8	11 8.5
Total	77 59.2	53 40.8	130 100.0

DISCUSSION

VKC is a recurrent and bilaterral inflammation of conjunctiva, having a periodic seasonal incidence characterized by marked burning and itchy sensation, photophobia, lacrimation, string discharge, and heaviness of eyelids. VKC has correlation to climate and geography. It is most common and most severe in hot and arid environments. In these areas up to 3% of eye clinic patients present with VKC. VKC is thought to be as allergic disorder in which IgE mediated mechanism play a role. such patients often give positive family history of atopy and their blood shows eosinophilia and increased serum IgE level. Increased number of CD4 + Th2 lymphocytes are expressed in the conjunctiva of patients with VKC, these cells drive IgE-mediated type I hypersensitivity reaction. Th2 generated cytokines and interlukines promote the synthesis of IgE. Clinically, VKC can be divided into 3 subtypes; conjunctival, limbal, and mixed presentation. Management of VKC by topical and systemic steroid medications is effective but because of their unwanted side effects, they are considered to be an unpopular selection for long term management. Desensitization (immunotherapy) has been tried with much rewarding results. Immunotherapy for VKC involves the administration of the allergen to which the patient is sensitive, for the purpose of modulating untoward immune response to that allergen and alleviating allergic symptoms. Subcutaneous immunotherapy is the best established form of this treatment. Oral and sublingual forms of immunotherapy are also performed. The results of our study revealed that (up to 79%) of participants who were recieved immunotherapy responded to it, in comparism to the study who was published in Original Article Magazine who revealed that (62%) of participants responded to immunotherapy. This difference may be due to the difference in the weather of the countries in which studies has been done. It is encouraging to notice the response to immunotherapy especially in the more resistant cases which need intensive steroid therapy (topical or systemic), with the risk or steroid induced glaucoma and to less extent cataract formation. Our study also revealed that the commonest allergen is mould 45 patients (34.6 %), tree 29 patients (22.3 %), house dust mite 23 patients (17.7 %), house dust 22

patients (16.9 %), others 11 patients (8,5 %). In comparism with the study of the same previous magazine, the commonest allergen is house dust, house dust mite, and pollens. This difference mostly due to difference in the community and the nature of life style. Our study also revealed that VKC affects males in earlier age than females, this may be due to early outdoor life of boys in our country. It also revealed that males are more sensitive to house dust and house dust mite than females, this may be because males not acclimatized to these allergens like females. VKC is a manifestation of type I hypersensitivity where there is antigen-antibody interaction on the surface of mast cells leading to mediator released deleterious consequences. Immunotherapy with multiple antigens vaccination specific to the patient profil causes progressively increasing amount of blocking antibodies with decreasing of specific IgE antibodies production.

Conclusion

The use of skin prick test to determine the sensitivity of patients with VKC to different stimulating allergens was conclusive. Hyposensitization management of VKC by specific allergen vaccination is a rewarded method because of its efficacy, safety, its tolerability, and easily performed. The lasting beneficial effects of immuotherapy is encouraging, particularly the cessation of topical steroid therapy. This study (and also many other previous studies) has revealed that Subcutaneous immune therapy is more effective than topical treatment in improving the clinical symptoms and reducing the total serum IgE level in patients with VKC. Future studies will be needed to determine the efficacy of hyposensitization immunotherapy in the management of VKC and also for its longer duration.

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