

# Prevalence of atopic diseases in Nigerian children with vernal kerato-conjunctivitis

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## Summary

A descriptive study of 117 cases of vernal kerato-conjunctivitis (VKC), in children below the age of 18 years, newly presenting to 2 hospitals in Ibadan, Nigeria. All the children had a structured questionnaire administered to them which inquired about demographic and clinical, especially history or presence of other atopic diseases amongst other things. Specifically inquired about were asthma, eczema, allergic rhinitis or hay fever, allergic skin rash e.g. scabies, reaction to drugs and others. The children were also examined to confirm or detect the presence of these atopic diseases. The overall prevalence of atopic conditions was 19.8% amongst cases of VKC. These comprised of 6% asthma, 5% allergic rhinitis and 4.3% eczema. (Total 15.5%). Other forms of atopic conditions like other non-specific allergic skin reactions (0.9%), reaction to certain drugs e.g. chloroquine (0.9%) and other unknown allergic conditions (2.6%).

It is suggested that children with VKC should be subjected to detailed enquiry and examination with regards to the presence of other atopic conditions. This will go a long way in understanding the type(s) of allergic response involved and perhaps of management of VKC.

**Keywords:** Prevalence, Atopic diseases, Vernal conjunctivitis.

## Résumé

Une étude descriptive de 117 cas des Vernaux Keratoconjunctivites (VKC) chez des enfants âgés de moins de 18ans, qui se présentent tout récemment dans 2 hôpitaux à Ibadan, Nigeria. Tous les enfants avaient un questionnaire structuré qui se renseigne sur démographique et clinique, et en particulier, l'histoire ou la présence d'autres maladies atopiques entre autres.

Spécifiquement, le questionnaire s'est renseigné sur les suivant: l'asthme, ecchymose, la rhinite allergique ou le rhume des foins, la rougeur de peau allergique, telle que la gale, et l'effets de la droque et les autres. Les enfants ont été examinés afin de confirmer ou détecter la présence de ces maladies atopiques.

Dans l'ensemble, la fréquence des conditions atopiques était 19,8% y compris la présence des maladies atopiques parmi les cas de VKC. Ceci comprend 6% asthme, 5% rhinite allergique et 4,3% ecchymose (Total 15,5%\_. D'autres genres des conditions atopiques comme d'autres effets allergiques de peau non-spécifiques (0,9%), les effets de certaines droques telle que la chloroquine (0,9%) et d'autres conditions allergiques inconnues (2,6%).

Nous proposons que les enfants atteints de VKC devront être exposé aux enquêtes détaillées et examen en ce qui concerne la présence des autres conditions atopiques. Ceci facilitera bien la compréhension le(s) genre(s) des réponse allergiques impliquées et peut-être la prise en charge de VKC.

## Introduction

Vernal kerato conjunctivitis<sup>1,2,3</sup> (VKC) is a chronic allergic disease of conjunctiva affecting children. It is characterised by features like itching, brownish discolouration and oedema of the conjunctiva, stringy discharge, occasional photophobia, with typical conjunctival limbal tarsal (palpebral) papillary response/hypertrophy.

VKC because of the intense itching, and its chronic nature, may be a source of profound discomfort and psychosocial disturbances, and may cause chronic absenteeism from school. Specifically, VKC is thought to be an atopic<sup>4</sup> disease with Type 1 hypersensitivity reaction and shares these mechanisms with other atopic conditions like asthma, hay fever, and eczema. The rarity of other atopic conditions in VKC in Nigerian children has been documented<sup>5,6</sup> by some workers. Some workers<sup>1,4</sup> have insinuated that the mechanism-involved in VKC cannot be explained by Type 1 hypersensitivity reactions alone. This should have implications for its management since the present treatment<sup>7,8,9</sup> for VKC is far from satisfactory particularly in the black<sup>10</sup> child.

Therefore the prevalence of atopic diseases in VKC, which hitherto, is thought to be rare in Nigerian children, needs to be reviewed. This will go a long way in understanding the type(s) and probably the mechanisms of allergic response involved. This will improve on our present management of VKC, which hitherto is unsatisfactory, therefore unacceptable.

## Subjects and methods

The survey was a study of new/consecutive cases of Vernal Kerato-conjunctivitis (VKC) in children aged below 18 years, who attended the Eye clinic of the University College Hospital (UCH), and the Adeoyo State hospital, both in Ibadan between April and June, 2000. All the children had a structured questionnaire, administered to them which inquired about demographic and clinical information. These included age, sex, presenting complaints, duration of presenting complaints and previous medical history/ocular diagnosis. Specifically inquired about were the history or presence of other atopic conditions like asthma, eczema, allergic rhinitis or hay fever, allergic skin rash e.g. scabies, reaction to drugs and others. Details of ocular features of vernal kerato-conjunctivitis were documented. The children were also examined to confirm or detect the presence of these atopic conditions.

Data on each patient was entered into the data collection form. Analysis was done using the Epi-Info version 6 statistical packages for frequency distribution. Approval for conduct of the study was secured from the Ethical Committee of the University College Hospital, Ibadan, Nigeria.

## Results

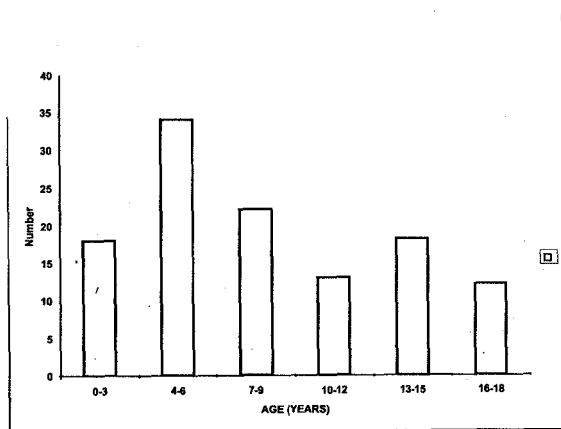
A total of 117 cases of VKC in children aged below 18 years of age were involved in the study. The age distribution amongst cases of VKC is shown in Figure 1. Almost half (42.7%)

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of children were between 2-6 years of age. The peak age group is 3-5 years (31.6%). There is slight male preponderance with

**Table 1** The prevalence of other atopic diseases in 117 cases of VKC

Atopic condition	Frequency	Percentage (%)
1. Asthma	7	6
2. Allergic rhinitis (Hayfever)	6	5.1
3. Eczema	5	4.3
4. Allergic skin rash (e.g. scabies)	1	0.9
5. Reaction to drugs (e.g. chloroquine)	1	0.9
6. Others/Unknown	3	2.6
Total	23	19.8



**Fig. 1** Age distribution in 117 children with VKC

a male to female ratio of 1.3:1.0.

The majority (89%) of cases complained of itching and brownish discoloration in combination with other symptoms. 62.4% of children had had symptoms for at least one year prior to presentation. (76.1%) of children admitted to seasonal variation in the episodes of symptoms. On examination, almost all the cases, presented with varying degrees of brownish discoloration of their conjunctivae (94%). The mixed type of the disease was commonest followed by the palpebral type which was commoner than the limbal type. The majority (83.8%) of the children presented with both palpebral and limbal (mixed) types of the disease, while 13.6% had only palpebral disease and 2.6% presented with limbal disease alone. 6.8% of children had Trantas dots. Superficial punctate erosion was by far the commonest corneal lesion encountered, and was present in 41% of children with VKC. Only 3 cases (2.6%) of frank corneal ulceration were encountered in the study. Corneal plaque was not common and was seen in only one child. The disease was mild in 35% of cases and severe to moderately severe in 65% of cases.

The overall prevalence of atopic diseases was 19.8%, which comprised of 6% cases asthma, 5% allergic rhinitis and 4.3% of eczema. (Total 15.5%). Other forms of atopic conditions like other non-specific allergic skin reactions (0.9%), reaction to certain drugs e.g. chloroquine (0.9%) and other unknown allergic conditions (2.6%). The prevalence of other atopic diseases is

shown in Table 1.

## Discussion

Our findings in this study have shed more light on this subject, thereby increasing our understanding of the disease by comparing our results with previous studies in Nigeria and elsewhere. A prevalence of 19.8% in clear terms indicate that 1 out of every 5 children with VKC has another atopic condition. This is at variance with the findings of other authors<sup>5,6</sup> in this environment on the prevalence of atopic diseases in VKC. Our findings have not denied the fact that VKC is an atopic<sup>4</sup> disease with typical type I hypersensitivity reaction to specific allergens. Rather it has lent credence to it since it confirmed a rather 'not too low' prevalence for the presence of other atopic condition in VKC. This is even modest despite the fact that history of atopy may be difficult to elicit particularly in an illiterate population, without any specific local terminology for common atopic conditions. Perhaps the true prevalence may even be higher than obtained in this study because of the fact that history of atopy may not be admitted in 'public' (clinic environment) particularly in an African Society which looks at such conditions as social stigmata.

Other workers<sup>1,2,4</sup> in temperate regions have also observed the low prevalence of atopic diseases in VKC, which corroborates the findings of previous workers in Nigeria. Yet, treatment of the same condition in different climatic regions remains unsatisfactory<sup>7,8,9,10,11</sup>. Perhaps, it may be that either the complete mechanisms of Type I reactions have not been exhausted or the mechanism itself is not fully understood. This concern has been expressed by some authors<sup>12</sup> who observed different clinical characteristics and immunoglobulin expressions between the 2 types of VKC - limbal and palpebral.

Our observation corroborates those of other workers<sup>5,6,13</sup> in the same environment particularly that of Sanford-Smith, who expressed the difficulty in making a distinction between both types, as most of the children with either also showed subtle features of the other, when examined more closely. In another study<sup>14</sup>, of 530 cases of VKC in northwest frontier province of Pakistan, the mixed type afflicted 93.6% of their cases. Purely limbal or palpebral varieties were rarely encountered in our series, hence the predominance of the mixed type in our series. But then, limbal VKC (also referred to, as tropical endemic limboconjunctivitis<sup>12</sup> has been claimed<sup>3</sup> to be very common in tropical countries, but that its severity depends on the possibility that a second co-existent disease could aggravate the expression of ocular allergy. It will appear as if other immunological mechanisms, apart from typical Type I reaction are involved some of which have been identified by other workers<sup>15,16</sup>. This can therefore explain why VKC has not satisfactorily responded to the various drugs presently used in its treatment.

In conclusion, it could be suggested from the findings of this study, that VKC may be basically an allergic disease involving other mechanisms or risk factors, which still need further elucidation. These factors are both genetic and environmental. There is therefore need for more case-control studies<sup>17</sup>, designed to study household risk factors in VKC. Such studies should rely more on objective data rather than subjective response and should include pathological data.

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