ORIGINAL ARTICLE

Pattern of Refractive Status in Patients with Vernal Keratoconjunctivitis at Birat Medical College Teaching Hospital

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ABSTRACT

Introduction: Refractive errors remain the most important cause of visual impairment in childhood worldwide which contributes to about 19% of total blindness in the world. This can be further complicated by other ocular conditions like vernal keratoconjunctivitis, which is a chronic, recurrent bilateral inflammation of conjunctiva and cornea. **Aims:** To assess the pattern of refractive status in patients with Vernal keratoconjunctivitis. **Methods:** This was a cross sectional hospital-based study conducted in patients attending the Outpatient department of ophthalmology at Birat Medical college Teaching Hospital with the clinical diagnosis of Vernal Keratoconjuctivitis from July 2020 to June 2021.The vision and baseline refractive status of all patients were assessed accordingly. All the data was recorded in a specifically designed proforma which was then entered in MS excel for statistical analysis. **Results:** 80 patients were included in the study out of which 85% were male and 15 % were female. The most common presenting age group was 7 to 12 years. The most common type of Vernal Keratoconjunctivitis was found to be mixed type (58%), followed by limbal (22%) and papillary (20%). The most prevalent refractive error was found to be astigmatism (37.5%) followed by hypermetropia (16.25%) and myopia (11.25%). The remaining patients (35%)had a normal state of refraction. **Conclusion:** Refractive error was commonly seen in patients with Vernal Keratoconjuctivitis in our study. Hence, awareness among the people about the disease is very important.

Keywords: Astigmatism, Refractive error, Vernal keratoconjunctivitis

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INTRODUCTION

Allergic disease affects 30-50% of the population, while ocular symptoms are present in 40-60% of allergic individuals.[1] Seasonal allergic conjunctivitis, vernal keratoconjunctivitis, giant papillary conjunctivitis, and atopic keratoconjunctivitis are the four classic types of allergic conjunctivitis.[2] It is estimated that approximately 19% of all blindness around the globe is the result of refractive errors in childhood. The situation can be made worse by other ocular ailments like vernal keratoconjunctivitis, an inflammation of the conjunctiva and cornea that is chronic and recurrent.[3] Normal vision is the sharpness or clarity of vision depending upon the acuteness of the image focused on the retina within.[4] Emmetropia is the status of refraction where in the parallel rays of light coming from infinity are focused at retina and converse is the state of ametropia. It is further classified into myopia, hypermetropia and astigmatism depending upon the point of focus in retina.[5] Vernal keratoconjunctivitis (VKC) or spring catarrh is a recurrent, bilateral, external, ocular inflammation affecting children and young adult, commonly males. Although VKC is a self-limiting disease a few patients end up with sight-threatening complications.[6] The main symptoms are intense ocular itching which may be associated with lacrimation, photophobia, foreign body sensations and burning. Thick mucus discharge from the eyes and ptosis may also occur. Occasionally vision may be compromised due to permanent changes in the ocular surface.[7] Our study was conducted with an aim to gather information about children's refractive status in the children having Vernal keraotoconjuctivitis so that it can be readily corrected.

METHODS

This was a cross-sectional, hospital - based study conducted in 80 patients attending the OPD of Ophthalmology at Birat Medical College Teaching Hospital with clinical diagnosis of VKC from July 2020 to June 2021. The inclusion criteria was all patients diagnosed as vernal keratoconjunctivitis on examination under slit lamp microscope and the exclusion criteria were patients having any other ocular pathology, patients more than 18 years of age and patients with unilateral involvement. The patients demographic information included date of presentation to the hospital, address, age, sex, occupation, presenting complains, duration of disease, history of previous drug administration and other allergic disorders. Written consent was obtained from the guardian of the subjects. For any refractive error, visual acuity was determined using the Snellen chart and the tumbling "E" chart. A pen torch and slit lamp biomicroscopy were used for examining the anterior segment while direct and indirect ophthalmoscopes were used for posterior segment examination. The diagnosis of VKC was made based on the history of itching and burning, redness, lacrimation, photophobia and a mucinous, ropy discharge and or clinical presence of papillae in the lower or upper tarsal conjunctiva. The baseline refractive status of these patients was assessed accordingly. Ethical clearance was obtained from Institutional ethics committee (IRC no: 81) of Birat Medical College Teaching Hospital, Biratnagar, Nepal.

Stastical analysis

Data collected were entered and analyzed using IBM SPSS Statistics version 25.

RESULTS

Out of 80 patients, 85% were male and 15 % were female (Figure1).

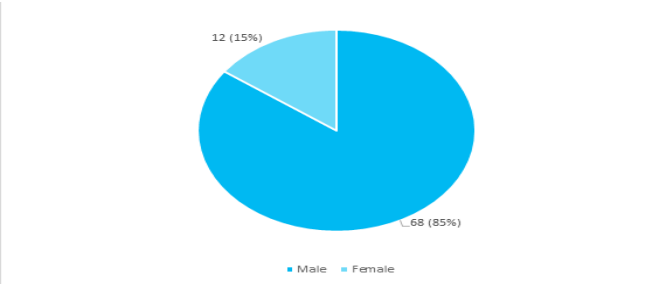

Figure 1 : Gender Distribution

Most of the patients were in the age group of 7 to 12 years (Figure 2).

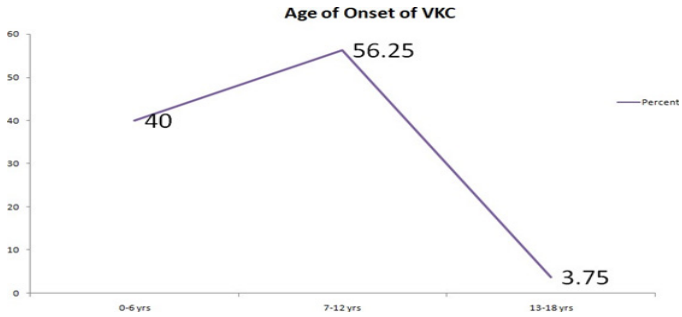

Figure 2: Age of onset in years

The most common type of VKC was found to be mixed type (58%), followed by limbal (22%) and papillary (20%). (Figure 3)

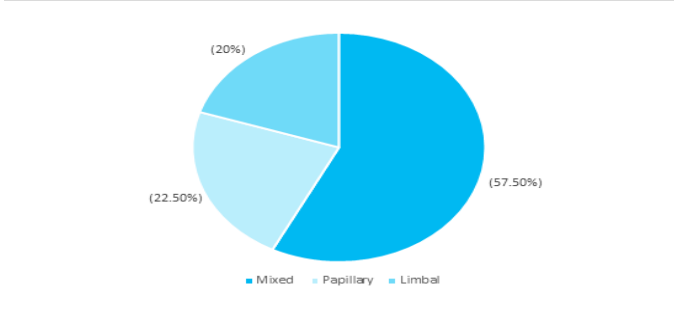

Figure 3 : Types of VKC

The most prevalent refractive error was found to be astigmatism(37.5%), followed by hypermetropia(16.25%) and myopia(11.25%). The remaining 35% of patients had a normal state of refraction. (Figure 4) Other complications like corneal scarring, keraotoconus, shield ulcer etc that could impair vision , were not seen in our study.

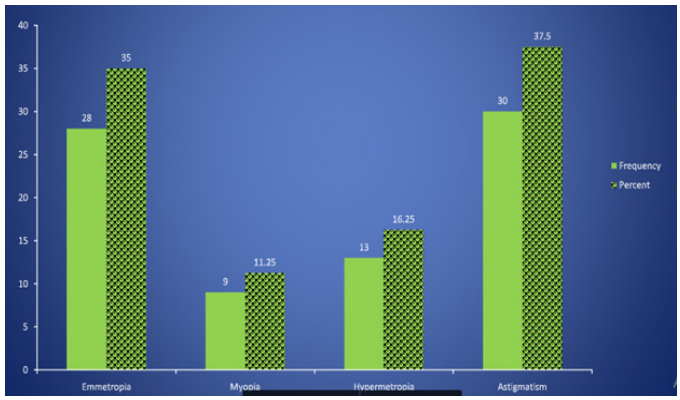

Figure 4 : Types of Refractive errors

DISCUSSION

VKC commonly referred to as "spring catarrh," is an allergic form of conjunctivitis, a common ocular condition occurring in hot and dry climates. It causes itching, redness, watering and photophobia. Prolonged history and severity of disease can lead to decrease in visual acuity which ultimately leads to development of refractive errors. The majority of patients in

our study were under the age of 17 at the time of presentation. A study on Vernal Keratoconjuctivitis was done by Tahir et al[8] at Lahore which showed maximum prevalence of astigmatism (55%) among their study population, which was similar to our study. Alves RM[9] et al conducted a study to find the topographic changes which showed high frequency of patients with keratoconus associated with VKC. The visual performance was compromised by aberrations and changes in corneal asphericity and other topographic variables. However, we did not find any patients of keratoconus in our study.

Tabbara[10] studied the ocular complications of patients with VKC and the result showed that VA may be impaired because of corneal scarring, astigmatism and keratoconus in patients with VKC. Mimura et al[11] did a study to investigate the relationship between refractive error and allergic conjunctivitis in 1015 subjects and their study suggested that refractive error itself may be a risk factor for allergic conjunctivitis. In the study of allergic conjunctivitis at Sheikh Zayad regional eye care centre, Gambia, a total of 7,912 patients were visited within the study period, out of which 624 (7.9%) were diagnosed with allergic conjunctivitis and refractive error was the most common ocular condition associated present in 7.4% of patients while the most common systemic association was asthma, reported in 1.4% of cases.[12]

LIMITATIONS

This study is limited by lack of follow up , since it is a cross sectional study. Also, for the same reason, it is hard to comment whether the refractive error was seen as a complication of vernal keratoconjunctivitis or it was just a simple association with it. It would be better to have multi centric study for better precision.

CONCLUSION

Vernal keratoconjunctivitis is a common allergic conjunctivitis and tends to affect more males within the 7-12 year old age group. It might further be complicated by refractive errors. Hence, early diagnosis and treatment of VKC is very essential for preserving vision in these patients.

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