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Prevalence and clinical characteristics of dry eye disease in vernal keratoconjunctivitis

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Abstract
Purpose: The main objective of this study was to determine the dry eye disorder in vernal keratoconjuntivitis patients.
Research Design and Method: This was a comparative cross sectional (analytical) study which included 95 patients. Samples size collected by randomized control method. Tear film breakup time was measured by schirmir test on slit lamp. Patients involved in the study was above 16 years to 22 years of age groups Data was analyzed using SPSS version 20.
Results: The schirmer test was performed to assess dry eye in patients with vernal keratoconjuntivitis. Out of 95 patients were involved in study. Out of 95 patients 54(56.8%) were males and 41(43.1 %) were females. Out of 95 patients 43 (45.2%) people having age 16 to 18 years and 25(26.3%) have age 19 to 21 years old and remaining 27(28.4%) have age 22 to 24 years. out of 95 patients in right eye the 27(28.4%) have normal tear breakup time in right eye and 22(23.1%) have moderate tear breakup time and remaining 46(48.4%) have severe tear breakup time.out of 95 patients in left eye the 27(28.4%) have normal tear breakup time in right eye and 22(23.1%) have moderate tear breakup time and remaining 46(48.4%) have severe tear breakup time.
Conclusion: It is concluded that there is risk of dry eye in Vernal keratoconjunctivitis patients it describes the vernal keratoconjunctivitis causes dry eye disorder.

Keywords: keratoconjunctivitis, Comparative, analytical, randomized

1. Introduction

Vernal keratoconjunctivitis (VKC) is included in the recent classification of ocular surface hypersensitivity disorders as both an IgE-and non-IgE mediated ocular allergic disease [1, 2]. The ocular surface is consistently exposed to the external environment, hence at greater risk to be attacked by both pathogenic and microorganisms. The ocular surface can be described as a group of tissues such as the cornea and conjunctiva. The ocular surface also includes the lacrimal gland the lacrimal drainage system and the mucosal adnexa [2, 3]. Itching, redness and foreign body sensation are the main symptoms of VKC. Lacrimation; photophobia, blepharospasm and pseudo-ptosis due to palpebral thickening are highly specific symptoms of VKC. These symptoms if not treated appropriately can persist for weeks. Seasonal exacerbation is common, but patients may have symptoms year-round especially those living in subtropical or desert climate, more than 60% of patient have repeated recurrence all year round and this led to the widely accepted hypothesis that VKC is an immunologically mediated hypersensitivity reaction to environmental antigens [4].

Dry eye disease (DED) is a major tear deficiency disorder which causes discomfort, visual disturbances, and tear film instability with potential damage to the ocular surface. The tear film and ocular surface form a complex and stable system that can lose its equilibrium through multiple disturbing factors [5]. DED is one of the most frequently established diagnoses in ophthalmology, and represents a growing public health concern, with consequences that remain widely underestimated. This pathology causes significant impact on visual function, which may affect quality of life and work productivity [6].

Aetiologically dry eye can be classified as [7, 8].

1. Aqueous deficient
2. Evaporative

Aqueous-deficient dry eye has two major subgroups: Sjogren's and non-Sj¨ogren's syndrome. Evaporative dry eye may be intrinsic (e.g., due to meibomian gland dysfunction, eyelid problems, or low blink rate) or extrinsic (e.g., due to vitamin A deficiency, preservatives in topical medications, contact lens wear, or diseases of the ocular surface) [8].

Dry eye disease has significant socio-economic implications, such as increased health-care costs and a negative impact on vision-related quality-of-life issues, such as driving, television watching, reading, computer work and emotional wellbeing [9].

DED is estimated to affect from 5% to more than 30% of the population, depending on the diagnostic criteria.[10] Despite the gain in knowledge of pathogenic factors of DES acquired in the past decades, there has been considerable discrepancy in the reported prevalence worldwide, mainly due to lack of consensus on appropriated diagnostic criteria and differences in the parameters and research methodology applied. Two large population based studies suggested that about 7.8% of American women and 4.7% of men aged 50 years and older had DES, 21.6% in men and women aged 48 to 91 years and 14.5% among those aged 21years.[11] In a study conducted in Melbourne, Australia, DES was diagnosed in subjects over 40 years old as 10.8% by rose Bengal staining, 16.3% by Schirmer's test, 8.6% by tear breakup time, 7.4% with two or more signs, and 5.5% with severe symptoms of DES not attributed to hay fever [5].

Research Design and Method

This was a comparative cross sectional (analytical) study which included 95 patients. Samples size collected by randomized control method. Tear film breakup time was

measured by schirmir test on slit lamp. Patients involved in the study was above 16 years to 22 years of age groups Data was analyzed using SPSS version 20.

Results

Table 1

	Frequency	Percent
Female	41	43.1
Male	54	47.8
Total	95	100.0

Above table no.1 shows 95 patients were involved in study. Out of 95 patients 54(56.8%) were males and 41(43.1 %) were females.

Table 2

	Frequency	Percent
16-18	43	45.2
19-21	25	26.3
22-24	27	28.4
Total	95	100.0

Above table no.2 shows that out of 95 patients 43 (45.2%) people having age 16 to 18 years and 25(26.3) have age 19 to 21 years old and remaining 27(28.4%) have age 22 to 24 years

Table 3

	Frequency	Percent
Normal	27	28.4
moderate	22	23.1
severe	46	48.4
Total	95	100.0

Above table shows that out of 95 patients in right eye the 27(28.4) have normal tear breakup time in right eye and 22(23.1%) have moderate tear breakup time and remaining 46(48.4) have severe tear breakup time.

Table 4

	Frequency	Percent
Normal	27	28.4
moderate	22	23.1
severe	46	46.1
Total	95	100.0

Above table shows that out of 95 patients in left eye the 27(28.4) have normal tear breakup time in leftt eye and 22(23.1%) have moderate tear breakup time and remaining 46(48.4) have severe tear breakup time.

Discussion

With reference to 3 million residents get conjunctivitis annually in unitedstates due to various causes most common allergic conjunctivitis [12]. Characteristically patients with acute vernal keratoconjunctivitis recovered within one or two week unfortunately if not treated properly permanent visual loss can occur along with considerable tenderness, lacrimation, photophobia and discomfort. Similar study precludes out of 60 patients, 37 (61.67%) were males and 23 (38.33%) were females, with male to female ratio of 1.6:1 as shown in results. Mean tear film breakup time in cases 11.46 ± 7.12 seconds and control group was 14.31 ± 6.69 seconds (Table I).Stratification of Mean tear film breakup time with respect to age groups is shown in Table I. After analysis of data in case group with respect to age distribution and on basis of gender was found less than control. In this study, age range was from 20-40 years with mean age of 28.03 ± 5.01 years. However the mean age of patients in cases was 27.98 ± 5.02 years as compare control group 28.20 ± 5.0 years [13]. The data on age wise distribution of cases are of the view that the younger age group (20-30 years) attracts more cases as compared to the older group (31-40 years). Percent distribution on basis of sexes were higher males this indication may be attributed to greater exposure and more prone to get chances of acute infectious conjunctivitis of young subjects to polluted, outdoor activities leading them to bacterial, viral and allergic infection give rise to conjunctivitis This study further finds out that age is confounder factor that could affect density of the conjunctiva superficial cells which decreases in number with advancing age. [14]. According to study Zhonghua conducted in china to observe the tear film changes in subjects who had recovered from acute conjunctivitis which included the 73 eyes of patients who complained for ocular discomfort describes strong association between tear film changes after acute conjunctivitis. Results shows BUT was 13.75 s in healthy eyes while 8.74 s in recovered eyes at 30 days thus shows significant difference in tear breakup time which was found less as compared to normal healthy eyes. [15]. During the acute conjunctivitis pathological variation of conjunctiva membrane and excessive use of topical therapeutic drugs affect the tear film secretion which leads to dry eye syndrome. However, dry eye can be avoided during the treatment of acute conjunctivitis by use of artificial tears or gel. Study justifies that acute conjunctivitis is pathogenic factor that affects the tear film stability and decreases tear breakup time depending on severity and duration of disease [16]

Conclusion

The schirmer test was performed to assess dry eye in patients with vernal keratoconjunctivitis. Out of 95 patients were involved in study. Out of 95 patients 54(56.8%) were females and 41(43.1 %) were males.

Out of 95 patients 43 (45.2%) people having age 16 to 18 years and 25(26.3) have age 19 to 21 years old and remaining 27(28.4%) have age 22 to 24 years

Out of 95 patients in right eye the 18(18.9) have normal tear breakup time in right eye and 27(28.4%) have moderate tear breakup time and remaining 50(52.6) have severe tear breakup time.Out of 95 patients in left eye the 18(18.9) have normal tear breakup time in leftt eye and 27(28.4%) have moderate tear breakup time and remaining 50(52.6) have severe tear breakup time It is concluded that there is risk of dry eye in Vernal keratoconjunctivitis patients in this study p-value 0.000 shows significant result which is less than 0.005, it describes the vernal keratoconjunctivitis causes dry eye disorder.

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