

ORIGINAL ARTICLE**Prevalence of dry eye disease among known population: A cross-sectional study**

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ABSTRACT:

Background: The present study was conducted for evaluating the prevalence of dry eyes disease among known population. **Materials & methods:** A total of 500 subjects were screened for the present study. Complete demographic and clinical details of all the patients was obtained. Details ocular examination of all the subjects was done. Reading less than ten millimetres wetting was considered as positive Schirmer's test. All the results were recorded and analyzed using SPSS software. **Results:** Dry eyes were seen in 22 percent of the patient population. While conducting univariate analysis, it was seen that age of more than 60 years, HbA1c of more than 9% and presence of pterygium were significant risk factors for development of dry eyes disease. **Conclusion:** From the above results, the authors conclude that significant of general population is affected by dry eye disease. Also; diabetics and geriatric patients are at higher risk for development of dry eye disease.

Key words: Dry eyes, Ocular, Tear film

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INTRODUCTION

Dry eye is a disorder of the tear film which occurs due to tear deficiency or excessive tear evaporation; it causes damage to the interpalpebral ocular surface and is associated with a variety of symptoms reflecting ocular discomfort. Dry eye syndrome, also known as keratoconjunctivitis sicca (KCS), is a common condition reported by patients who seek ophthalmologic care and is characterized by inflammation of the ocular surface and lacrimal glands.^{1,2} A study using the Impact of Dry Eye Living Questionnaire (IDEEL) found that severe dry eye symptoms were correlated with difficulties in physical, social, and mental functioning. A case-control study assessing the impact of dry eye symptoms on everyday activities found that patients with DES had difficulties with reading, carrying out professional work, watching television, and driving. These studies illustrate how significantly dry eye symptoms can impact a patient's functioning.³⁻⁵

Dry eye syndrome is recognized as a growing public health problem and one of the most frequent reasons for seeking ophthalmological intervention. Various terms have been used to describe DED including keratoconjunctivitis sicca and, more recently, dysfunctional tear syndrome suggesting that the name more accurately reflects pathophysiological changes. The definition of DED which includes etiology, pathophysiology, and symptoms was recently improved in the light of new findings about the role of

tear hyperosmolarity and ocular surface inflammation in dry eye and its effect on visual function.^{6,7} Hence; the present study was conducted for evaluating the prevalence of dry eyes disease among known population.

MATERIALS & METHODS

The present study was conducted for evaluating the prevalence of dry eyes disease among known population. A total of 500 subjects were screened for the present study. Complete demographic and clinical details of all the patients was obtained. Details ocular examination of all the subjects was done. Biochemical profile of all the patients was also evaluated. A standard Schirmer's strip was placed over the lateral one-third of lower lid after instilling a drop of Proparacaine 0.5%. After five minutes, the level of strip wetting (in millimetres) was noted. Reading less than ten millimetres wetting was considered as positive Schirmer's test. All the results were recorded and analyzed using SPSS software.

RESULTS

A total of 500 subjects were analyzed during the study period. Among these 500 subjects, dry eyes were seen in 22 percent of the patient population. While conducting univariate analysis, it was seen that age of more than 60 years, HbA1c of more than 9% and presence of pterygium were significant risk factors for development of dry eyes disease.

Table 1: Prevalence of dry eyes

Dry eyes	Number	Percentage
Present	110	22
Absent	390	78
Total	500	100

Table 2: Correlation of risk factors for occurrence of dry eyes

Risk factors	95% CI	p- value
Age of more than 60 years	1.25 to 2.35	0.001 (Significant)
Female gender	3.25 to 4.15	0.112
HbA1c value more than 9%	0.25 to 2.63	0.000 (Significant)
Presence of Pterygium	-1.25 to 1.74	0.000 (Significant)

DISCUSSION

Dry eye symptoms may be a manifestation of a systemic disease, therefore timely detection may lead to recognition of a life-threatening condition. Additionally, patients with dry eye are prone to potentially blinding infections, such as bacterial keratitis and also at an increased risk of complications following common procedures such as laser refractive surgery.⁶⁻⁹

Several diagnostic tests have been used to assess the quantity; quality and functioning of various layers of tear film and diagnose the subtype and severity of Dry Eye although some are suitable only in research laboratory settings, e.g., lysozyme, tear lactoferrin, epidermal growth factor (EGF), as well as tear-film osmolarity. Availability and the cost of these tests may restrict their use in a population-based study. Simple tests like Schirmer's test, Tear Film Break Up Time test, Rose Bengal test, Lissamine Green test and Meibomian Gland Dysfunction test are commonly used in clinical practice.⁸⁻¹⁰ Hence; the present study was conducted for evaluating the prevalence of dry eyes disease among known population.

A total of 500 subjects were analyzed during the study period. Among these 500 subjects, dry eyes were seen in 22 percent of the patient population. Hashemi H et al determined the prevalence of dry eye syndrome in the general 40- to 64-year-old population. Through cluster sampling, 6311 people were selected and 5190 participated. Assessment of dry eye was done in a random subsample of 1008 people. Main outcome measures: Those with an Ocular Surface Disease Index score ≥ 23 were considered symptomatic, and dry eye syndrome was defined as having symptoms and at least one positive objective sign. The prevalence of dry eye syndrome was 8.7%. Assessment of signs showed an abnormal Schirmer score in 17.8%, tear break-up time in 34.2%, corneal fluorescein staining (≥ 1) in 11.3% and Rose Bengal staining in 4.9%. According to the Ocular Surface Disease Index scores, 18.3% had dry eye syndrome symptoms. The prevalence of dry eye syndrome was significantly higher in women and not significantly associated with age. The objective dry eye syndrome signs significantly increased with age.¹⁰

In the present study, while conducting univariate analysis, it was seen that age of more than 60 years,

HbA1c of more than 9% and presence of pterygium were significant risk factors for development of dry eyes disease. In another study conducted by Lee AJ et al, authors determined the prevalence and identify associated risk factors for dry eye syndrome in a population. A one stage cluster sampling procedure was conducted to randomly select 100 households in each of the five rural villages and one provincial town. Interviewers collected demographic, lifestyle, and medical data from 1058 participants aged 21 years or over. Prevalence of one or more of the six dry eye symptoms often or all the time adjusted for age was 27.5%. After adjusting for all significant variables, independent risk factors for dry eye were pterygium and a history of current cigarette smoking.¹¹ Schaumberg DA et al compared DED prevalence to a similar cohort of women, and examined associations with possible risk factors. The prevalence of DED increased with age, from 3.90% among men 50–54y old to 7.67% among men 80y and older (P for trend <0.0001). High blood pressure (OR=1.28; CI=1.12–1.45) and benign prostatic hyperplasia (OR=1.25; CI=1.09–1.44) were associated with a higher risk of DED. Use of antidepressants, antihypertensives, and medications to treat benign prostatic hyperplasia were also associated with increased risk of DED. The age-standardized prevalence of DED was 4.34%, or 1.68 million men aged 50y or older, and is expected to affect over 2.79 million US men by 2030. DED is prevalent and increases with age, hypertension, benign prostatic hyperplasia and antidepressants.¹²

CONCLUSION

From the above results, the authors conclude that significant of general population is affected by dry eye disease. Also; diabetics and geriatric patients are at higher risk for development of dry eye disease.

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