

Age-related Changes in Dry Eye Syndrome: A Retrospective Cohort Study

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Abstract

Aim: Dry eyes are a part of the natural aging process. The majority of people over the age of 65 years experience some symptoms of dry eyes. To investigate the age-related changes in dry eye syndrome (DES) and distribution of associated risk factors among a hospital-based population.

Methods: In this retrospective cohort study, we collected the detailed information of clinically diagnosed dry eye patients among a consecutive hospital-based population, including age trends, gender, and associated risk factors.

Results: Maximum number of DES cases recorded in the age group of 41-50 years. 15 eyes are shown severe range of film tear followed by 25 eyes are had moderate film tear.

Conclusion: Middle age people are more prevalent to DES. People must be educated on the quality of eye to lead a healthy life style.

Key words: Dry eye, Keratoconjunctivitis sicca, Risk factors

INTRODUCTION

Dry eye syndrome (DES), also known as keratoconjunctivitis sicca or keratitis sicca, is a multifactorial disease of the tears and the ocular surface that results in discomfort, visual disturbance, and tear film instability with potential damage to the ocular surface.¹ There is no population-based study in relation to dry eye disease in India. However, there are only three published reports on the prevalence of dry eye among hospital-based population from northern and eastern regions of India, and the prevalence varies between 18.4% and 40.8%.²⁻⁵ One small study from high altitude showed a higher prevalence of 54%.⁶ The alterations in any one or more functions of the ocular surface system components with age will cause a disruption of the tear

film. This will lead to drying of the ocular surface, which in turns leads to decrease in visual sharpness and subjacent epithelial injury with ensuing inflammation. Dry eye is a multifactorial disease of the ocular surface that results in symptoms of discomfort, visual disturbance, tear alterations, and tear film instability with the damage to the ocular surface.⁷ DES is essentially a clinical diagnosis, made by combining information obtained from the history and physical examination and performing one or more tests to lend some objectivity to the diagnosis. No single test is sufficiently specific to permit an absolute diagnosis of DES.⁸ Symptom questionnaires can be used to help establish a diagnosis of DES and to assess the effects of treatments or to grade disease severity. Studies that may be employed in the workup include impression cytology (e.g., to monitor the progression of ocular surface changes), measurement of tear breakup time, the Schirmer's test, and quantification of tear components (e.g., through analysis of tear proteins or tear film osmolarity).⁹ The patients with DES were more likely to have comorbidities of ischemic heart disease, hyperlipidemia, cardiac arrhythmias, peripheral vascular disorder, migraines, myasthenia gravis, rheumatoid

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arthritis, systemic lupus erythematosus, asthma, pulmonary circulation disorders, and diabetes with complications, hypothyroidism, liver diseases, peptic ulcers, hepatitis B, deficiency anemias, depression, psychoses, and solid tumors without metastasis.¹⁰

Aim

The purpose of this paper to study the changes in DES patients in relation to age and to compare the history and adverse events of the various comorbid conditions.

METHODS

A retrospective cohort study was conducted in a tertiary ophthalmic hospital in Tirunelveli. Patients interviewed for this study were already diagnosed with DES. 26 patients were interviewed for the study in all age groups. A structured questionnaire used for this study was designed and validated by concerned institutional ophthalmologist. Detailed history of the patients was recorded including details of sex, age, and other complaints. The questionnaire was developed in English, the interviewer translates the questionnaire to the patients if necessary.

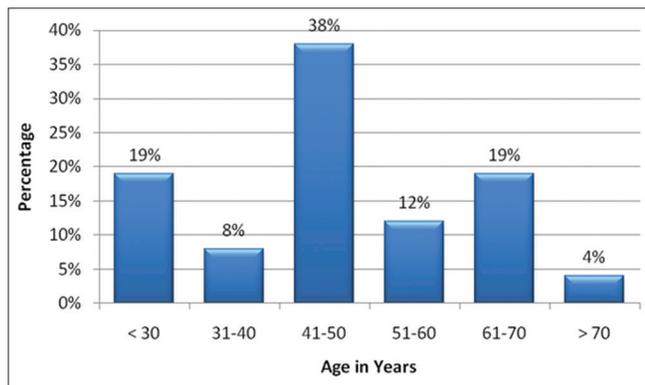


Figure 1: Age distribution of study patients

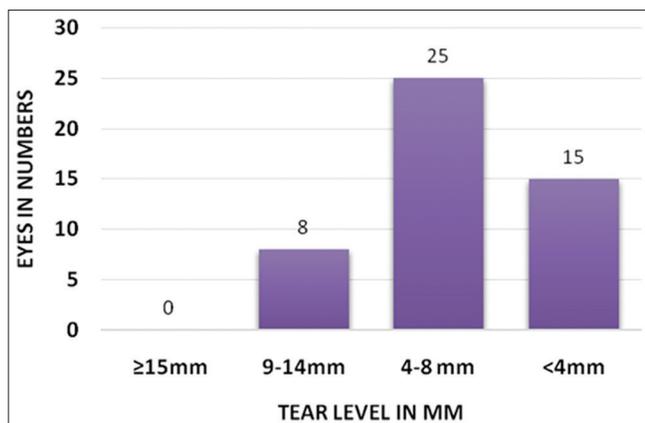


Figure 2: Distribution of tear film in study patients

RESULTS

Out of the 26 patients involved in the study, the majority of patients were in the age group of 41-50 years followed by <30 years and 61-70 years, i.e., 38%, 19%, and 19%, respectively. Associated with gender variation, 54% of male and 46% of female patients were studied (Figure 1).

Out of the 26 patients, 48 eyes were diagnosed with DES. Schirmer’s test showed that 15 eyes had <4 mm tear film which is severe and 25 eyes had 4-8 mm tear film which is moderate. Regarding comorbidity, 35% of patients were hypertensive followed by 31% of diabetic patients. The majority of the patients (50%) were taking medications for other diseases (Figures 2 and 3).

High number of patients with DES are computer users from two different age groups of <30 years and 41-50 years. 41-50 years age group patients had an equal number of smoking habit and contact lens users. Patients in the age group of 41-50 years had higher number, pain, and used artificial tears. Patients in the age group of <30 years represented the highest number in using cosmetics. Patients who had dust allergy are high in numbers in the age group of 41-50 years and 51-60 years followed by <30 years’ age group. Cataract is the highest number ocular surgery in the age group of 61-70 years, followed by 41-50 years age group (Figures 4 and 5).

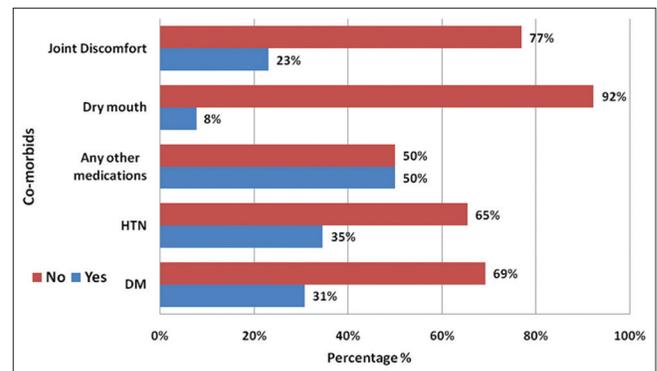


Figure 3: Distribution of comorbid in study patients

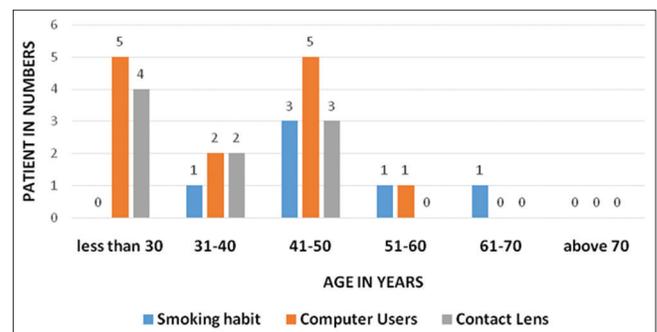


Figure 4: Distribution of risk factors in study patients

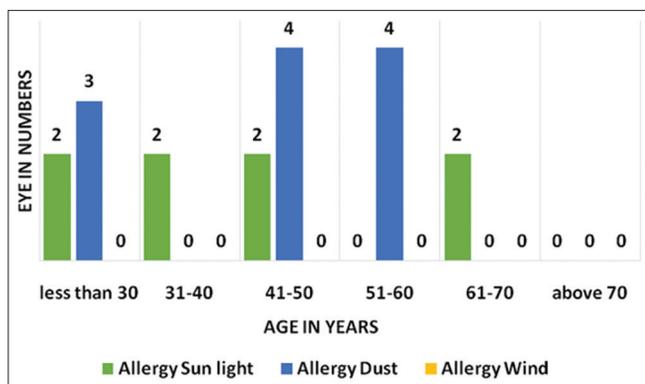


Figure 5: Distribution of allergies in study patients

DISCUSSION

In our study, the history of 26 patients with DES was recorded and analyzed. The maximum number of DES cases were recorded in the age group of 41-50 years. Sex-wise distribution of DES did not show much variation among males and females. 15 eyes showed severe range of film tear followed by 25 eyes with moderate film tear. The Schirmer's test was used to estimate the size of tear film. The sensitivity and specificity in detecting symptomatic subjects were low. One of the major reasons for the low sensitivity and specificity is the heterogeneity of DES.¹¹ Schirmer's test yielded the highest number of false positive in one study, However, the high false-positive rate reduces the usefulness of this test in identifying asymptomatic patients.¹² Hypertension and diabetes were the systemic diseases observed with DES. Maximum number of patients with DES are computer users, the age group of <30 years and 41-50 years shown high. 41-50 years of age group had an equal number with smoking habit and contact lens usage. More than smoking habit and contact lens usage shown high number in <30 years age group followed by 41-50 years age group. Cosmetics usage was also a notable point in <30 years age group with high numbers affected eyes. The patients undergone cataract surgery are shown maximum numbers in the age group of 61-70 years followed by 41-50 years age group, >30 years the subject to DES was increased. Dust allergies are high

in 2 age groups 41-50 years and 51-60 years, followed by <30 years age group.

CONCLUSION

Our study seems to indicate the DES is the most common in all age groups with no gender variations, due to increased computers use. DES causes considerably economic impact and quality of life significantly. The patients undergo cataract surgery should be informed about the significance of DES. Preservative free artificial drops are beneficial in long-term use for all age groups. A simple method to prevent DES to increase the eye blink rate and it take long way in decreasing the symptoms.

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