ORIGINAL RESEARCH PAPER

Ophthalomology

KEY WORDS: Dry Eye Disease, Tear Film, Medical Students, Screen Time

A STUDY OF PREVALENCE OF DRY EYE AMONG MEDICAL STUDENTS USING OCULAR SURFACE DISEASE INDEX QUESTIONNAIRE

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ABSTRACT

Aim: To study the prevalence of dry among medical students using Ocular Surface Disease Index questionnaire. **Materials and Methods:** A cross sectional study was conducted among 150 willing medical students. **Results:** Out of 150 students 62 students were founds to have dry eye out which 23 were girls and 39 were boys. Out of 62 dry eye students 5 students had severe dry eye, 16 students had moderate dry eye, 41 students had mild dry eye. **Conclusion:** The prevalence of dry eye among medical students was 41.3%. Longer duration of screen usage was the only factor that showed a significant association with dry eye.

INTRODUCTION

Dry eye disease (DED) is a complex multifactorial disorder, characterised by loss of tear film homeostasis that leads to a self-perpetuating cycle of ocular surface inflammation and damage.[1] It is among the most encountered chronic ophthalmic conditions in clinical practice, with adult population prevalence estimates ranging from 5%-50% in different parts of the world.[1]Environmental factors such as low humidity, increased airflow over the ocular surface, dust, tobacco smoke, and air pollutants as well as lifestyle influences like poor eyelid hygiene practices, extreme use of digital devices and contact lens wear, can also promote DED.[1]

Patients with DED have a reduced quality of life since it makes them more painful, depletes their energy and makes it harder for them to read and drive, during other tasks as well. All of these things reduce the patients ability to function well in their daily lives and at work.[2]

Early preventative efforts are essential for decreasing the burden of DED, considering that it is one of the ocular problems that can potentially be prevented. However a large number of studies have been carried out to explore the nature of DED, very few have attempted to investigate the features of DED among medical students.

Thus, by examining the prevalence of DED among medical students—a subset of aspiring healthcare professionals—this study seeks to close this gap. We aim to clarify how digital device use affects ocular health in this population by examining dry eye metrics and their relationship to average screen time. By thoroughly analyzing these variables, we want to provide insightful information that will aid in the creation of efficient therapies and preventative strategies to decrease the incidence of DED among medical students.

MATERIALS AND METHODS

- Source of Data: UG students of a medical college.
- Study Design: A cross-sectional study.
- Sample Size: 150
- Methods:

❑ A Cross sectional study was conducted which includes 150 medical students.

❑ Ocular surface disease index questionnaire was used to assess dry eye.

❑ The OSDI score was used to categorize students with dry eye as mild (13-22 points), moderate (23-32points), and severe (33-100 points).

❑ The date was statistically analyzed using the Chi-square test. A P-value of less than 0.05 was considered clinically significant for the variable associated with DED.

RESULTS

- Out of 150 students 62 students were founds to have dry eye out which 23 were girls and 39 were boys. Out of 62 dry eye students 5 students had severe dry eye, 16 students had moderate dry eye, 41 students had mild dry eye.
- A high OSDI score (> 12 points) was associated with the long hours of digital screen exposure.

Table 1: Prevalence of Dry Eye as Per OSDI Questionnaire

Grade of dry eye	No of students	Percentage
Normal	88	58.66
Mild	41	27.3
Moderate	16	10.6
Severe	5	3.33

Association of Dry Eye and Visual Display Units (laptops/ Mobile)

VISUAL DISPLAY UNIT (LAPTOP/MOBILE) USAGE	OCULAR SURFACE DISEASE INDEX(OSDI)			
	Normal	Mild	Moderate	Severe
<3HRS No. of students % With laptop/mobile usage	33 55%	17 28.3%	8 13.3%	2 3%
3-6H No. of students % With laptop/mobile usage	35 67.3%	11 21.1%	5 9.6%	1 1.9%
>6H No. of students % With laptop/mobile usage	20 46.5%	13 30.23 %	3 6.9%	7 16.27 %
Total No. of students % With laptop/mobile usage	88 58.6%	41 27.3%	16 10.6%	5 3.33%

DISCUSSION

DED is one of the most prevalent ophthalmic disorders and may have an adverse impact on the quality of life.

The estimated worldwide prevalence of DED ranges from 5%-50% and varies by population. Associated symptoms include ocular redness, dryness, itchiness, grittiness, foreign body sensation, eye fatigue and visual disturbance.[1]

Dry eye can adversely affect perceptions of both physical and mental wellbeing in affected patients, decreasing the overall quality of life.[1]

In fact studies have demonstrated that patients with moderate to severe DED rank the loss of utility associated by disorders such as disabling hip fracture and severe angina.[1]

Dry eye disease has been found to negatively impact work productivity and activities of daily living, indicating significant socioeconomic impacts of the disorder.[1]

Establishing a diagnosis of DED can be difficult, as signs and symptoms of the disease may not correlate with one another, and other conditions that may present similarly must be excluded.[1]

Diagnosis is most often based on a combination of relevant patient history and multiple clinical diagnostics that detect tear film or ocular surface abnormalities. These may include symptom questionnaires, ocular surface staining, lipid layer analysis, tear breakup time (TBUT), tear osmolarity tear production, detection of ocular surface inflammatory markers, meibography or eyelid health examination.[1]

Once a diagnosis of DED has been made, treatment should be initiated as appropriate on an individualized basis.[1]

The most prevalent hypothesis to explain the link between digital screen use and dry eye is digital screen use influences blinking dynamics by reducing both blink rate and blink completeness, leading to increased ocular surface dryness.[3]

Digital screen use is a part of everyday life and is a risk factor for DED.

Our study conducted among 150 UG medical students showed 41.3% prevalence of dry eye disease based on OSDI questionnaire.

- A study conducted by Yuvashree et al. indicating a prevalence of DED at 56.8%, shedding light on the substantial burden of the condition within this cohort.[2]
- A study conducted by Bahkir et al. observed a prevalence rate of 56.5%, with a notable higher incidence among female participants, underlining the gender-related disparities in DED prevalence.[4]
- A study conducted by AR Aberamme et al. observed a prevalence of dry eye was 46.1% among medical students. There was significant associated between dry eye and longer duration of visual display unit usage of more than 6h (52.6%, $P<0.001$).[5]

CONCLUSION

The prevalence of dry eye among medical students was 41.3%. Longer duration of screen usage was the only factor that showed a significant association with dry eye.

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