Dry Eye among Medical Students of Gandaki Medical College, Pokhara, Nepal

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ABSTRACT

Introduction: Dry eye disease results from decreased tear production, increased evaporation of tears and inflammation. Medical students often have dry eyes due to use of projectors, computers for study and also due to use of mobiles.

Objective: The present study was undertaken to find out dry eye by Schirmer 1 test with local anesthesia and measurement of wetting of Schirmer test strip.

Methods: Schirmer 1 test with anesthesia was performed on 200 medical students from June 1, 2017 to June 1, 2018 after obtaining informed consent and after applying some exclusion criteria. The test was performed by first applying 4% topical lignocaine and then using Whatman filter paper no 41 and wetting of the filter paper measured after five minutes and time noted.

Results: 146 (73%) Among 200 Students, were males and 54 (27%) were females. Mean age of patients was 21.73 ±1.42 years. Mild dry eye was seen in 19.5%, moderate in 13% and severe dry eye in 13.5% of medical students

Conclusion: Dry eye is one of common ocular disease among medical students.

INTRODUCTION

Dry eye is a common disease affecting worldwide. Dry eye is defined as a multifactorial disease of tears and ocular surface that results in discomfort, visual disturbance and tear film instability with potential damage to the ocular surface and is accompanied by increased osmolarity of tear film and inflammation of ocular surface according to International Dry Eye Workshop (2007)[1].

It is a very common condition affecting a significant percentage of the population. Different surveys have estimated the prevalence of dry eye varying between 5% and >30% in various age groups across different countries and worldwide. The estimated number of people affected by dry eye, range from 25 to 30 million all over the world[2].

Similarly other studies have also shown that dry eye affects 3-34% of the global adult population[3,4].

Dry eye disease results from decreased tear production, increased evaporation of tears and inflammation.

Symptoms of dry eye include dryness, discomfort, irritation, itching, fatigue, foreign body sensations, sensitivity to light in eyes, pain, and burning, mucous discharge and tear film alterations caused by tear deficiency and/or increased tear. More severe cases may present as eyes swelling, redness, corneal epithelium damage, and even vision disturbance.

Various methods used to diagnose dry eye disease include Schirmer test, phenol red thread test, tear film break up time (TBUT), tear meniscus height, epithelial staining

with rose Bengal and lissamine green, tear osmolarity, impression cytology.

Different tests have been shown to have different specificity and sensitivity. Tear osmolarity determination is the most reliable test to diagnose dry eye but is expensive to perform and time consuming. Schirmer test is one such test which is simple to perform and does not require slit lamp or other equipment and can be performed easily in OPD.

Schirmer introduced the test in 1903 and since then it has been modified by many investigators. Schirmer 1 test is the most popular of the variants and is carried out with and without anesthesia. When performed with anesthesia, it measures basic tear secretion and when performed without anesthesia it measures both reflex and basal tear secretions[5,6].

·Gandaki Medical College Teaching Hospital is a tertiary centre at Pokhara with medical students enrolled in different subjects for graduation and post graduation. The MBBS program was started in 2010. Medical students often have dry eyes due to use of projectors, computers for study and also due to use of mobiles. Numbers of students come to Ophthalmology OPD with the problem. So this study is done to screen dry eye among medical students.

MATERIALS AND METHODS

After obtaining informed consent, 200 medical students from June 1, 2017 to June 1, 2018 were screened for dry eye by Schirmer 1 test after obtaining informed consent. Schirmer 1 test was done by commercially available schirmer strip that is Whatman filter paper no 41. Topical 4% xylocaine was applied to both the eyes five minutes before the test. Five millimetre of the Schirmer strip was folded and kept at the junction of lateral one third and medial two third of the lower eye lids with the eyes open. After five minutes the strip was removed and wetting of the strip was measured. According to wetting of the Schirmer strip, dry eye was graded as normal when the reading is more than 15 mm, mild dry eye 11 - 15 mm, moderate dry eye 5 - 10 mm, and severe less than 5 mm.

RESULTS

Among 200 students who were screened for dry eyes, 146 were males and 54 were females. The mean age of the

students was 21.73 ±1.42 years. Table 1 shows age and sex distribution of the patients.

Table 1: Age and sex distribution of patients

Age	Males	Females
18	2	1
19	6	3
20	20	4
21	34	19
22	33	13
23	39	12
24	7	0
25	5	2
Total	146 (73%)	54 (27%)

Schirmer test showed that 108 students were normal that is there are no dry eyes, and 39 students had mild dry eyes, 26 students had moderate dry eyes and 27 had severe dry eyes.

Table 2: The results of Schirmer test

	No. of patients	Percentage (%)
Normal	108	54%
Mild dry eye	39	19.5%
Moderate dry eye	26	13%
Severe dry eye	27	13.5%

DISCUSSION

Dry eye is seen in all age groups but more commonly occurs in adult population. Dry eye is especially more common in those who work in computers, visual display terminals. No such studies among medical students have been done. Medical students are prone to dry eye due to prolonged use of projectors and computers for their academic activity. Also use of mobiles is common in this age group.

Dry eye is more common in females compared to males in studies done world wide[7,8,9,10]. Also study by Suchi Shah and Harsha Jani showed that 52% females had dry eyes compared to males[11].

Likewise a retrospective study conducted at Miami and Broward Veterans Affairs Eye Clinics estimated a prevalence of 22% DED in females compared to 12% in males[12]. In our study, it is more common among males than females. This can be explained from the fact that majority of the students were males. Also dry eyes in common among elderly women in studies world-wide but in our studies the subjects were

in twenties.

Our studies showed that 46% of the students had dry eyes, and 13.5% had severe dry eyes. Various hospital based studies showed prevalence of dry eyes as 18.4% and 40.8%[13,14,15]. Similarly the prevalence of dry eye is 25% in Canada[16] and 33% in Japan[17].

Dry eye has been seen among computer users. A study by Sandip D. Patil *et al*[18] among computers showed that dry eye is seen among 25% computers users. Study of medical students is generally based on computers and lap tops, so the dry eye seen among our students is consistent with other studies.

CONCLUSION

Dry eye is one of common ocular disease among medical students. Knowledge of dry eye helps in early diagnosis and treatment of dry eyes.

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