Prevalence of the dry eyes in the routine Outpatient department of Ophthalmology in a tertiary care centre

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Abstract

Introduction: Dry eye is a multifactorial disease of tears and ocular surface that results in symptoms of discomfort, visual disturbances and tear film instability with potential damage to the ocular surface.

Typical symptoms of dry eye syndrome are dryness, burning and a sandy-gritty eye irritation that gets worse as the day goes on.

Symptom assessment is a key component of dry eye diagnosis - to the extent that many believe dry eye syndrome to be a symptom-based disease.

Materials and Method: This study was carried out at ophthalmology Outpatient department of Sri Guru Ramdass Institute of Medical Sciences Amritsar. All the patients visiting for any ocular disease were screened for the presence of the dry eye over the period of 6 months i.e. June –Nov 2016. The patients were examined by Tear Film Breakup time and Schrimer's test.

The patients found positive were then asked to answer a pre-validated questionnaire.

Results: Intially, out of total 12144 patients 4572 patients presented with symptoms of dry eye. After screening with Tear film breakup time (TBUT) and schirmer's test, 2418 patients (19.91%) were diagnosed to be having actually dry eyes. Prevalence was found to be 12.55%in males and 7.41%in females.

The association of various dry eye signs with smoking, anti arthritis treatment and antipsychotic drugs were found. Total 43.05% of the patients were involved in outdoor work. 19.72% were actively computer users, only 3.97% were using with screen while15.75% were using computer without screen.

Conclusion: In our study due to more number of working women has highly influenced the result. The incidence of dry eye found highly variable depending upon the geography, living style as well as with the work profile of the patient complaining of dry eyes.

Keywords: Dry eye, Tear film breakup time, Schirmer's test

Introduction

Dry eye is a multifactorial disease of tears and ocular surface that results in symptoms of discomfort, visual disturbances and tear film instability with potential damage to the ocular surface.[1] It is normally accompanied by increased osmolarity of the tear film and inflammation of the ocular surface. It can be categorized as episodic or chronic.

Typical symptoms of dry eye syndrome are dryness, burning and a sandy-gritty eye irritation that gets worse as the day goes on. At the times, it is also described as itchy, scratchy, stingy or tired eyes. Pain, redness, a pulling sensation, and pressure behind the eye can also be the presentation.[1,2] There may be a feeling that something, such as a speck of dirt, is in the eye. The resultant damage to the eye surface increases discomfort

Globally, the prevalence of dry eye is found to be 7% - 33.7%

Symptom assessment is a key component of dry eye diagnosis - to the extent that many believe dry eye syndrome to be a symptom-based disease. Several questionnaires have been developed to determine a score that would allow for the dry eye diagnosis.[3]

Materials and Method

This study was carried out at ophthalmology Outpatient department of Sri Guru Ramdass Institute of Medical Sciences Amritsar. All the patients visiting for any ocular disease were screened for the presence of the dry eye over the period of 6 months i.e. June –Nov 2016. The patients were examined by Tear Film Breakup time and Schrimer's test.[4]

For TBUT test, the reading less than 10 seconds was taken as abnormal (patient excluded). The Schirmer's-2 test (without anaesthetic) was used to measure the baseline secretions.

The patients found positive were then asked to answer a pre-validated questionnaire. The Dry Eye Questionnaire was derived from the standard questionnaire by McMonnies & Ho.

The validated 15 item of ocular symptoms relating to dry eye were included in the questionnaire:
1. Do you ever feel a gritty or sandy sensation in your eye?
2. Do your eyes ever have a burning sensation?
3. Are your eyes ever red?
4. Do your eyes ever get stuck shut?
5. How often do your eyes have these symptoms?
6. Which type of job you do?

7.   Is it a field Job or office job?
8.   How long you use two wheelers?
9.   Do you use sun glasses while out?
10. How long you use Computer in a day?
11. Do you use screen while using computer?
12. How long u watch television?
13. Do you suffer from thyroid or arthritis?
14. Any medicines taken for anxiety or depression?
15. Do you use any contact lens?

The symptoms were further graded as:

Grade1-rarely (at least once in 3–4 months)
Grade 2-sometimes (once in 2–4 weeks)
Grade 3-often (at least once a week)

Grade 4- all the time.

Information about sex, age, current occupation, current cigarette smoking status, and household fuel use was also collected.

The team members performing the eye examinations were masked to dry eye questionnaire.

Results

The data collected were then tabulated and the number of the patients having symptoms of the dry eyes and relation with other parameters were calculated.

Table 1: Prevalence and Percentage of dry eye according to gender (n=12144)

Sex	Number of patients with symptoms related to dry eye	Number of dry eye patients	Percentage	Prevalence
Male	2478	1518	61.25%	12.55
Female	2094	900	42.98%	7.41%
Total	4572	2418	52.89	19.91%

Table 2: Percentage and Prevalence of dry eye according to age (n=12144)

Age group (years)	Number of patients with symptoms related to dry eye	Number of dry eye patients	Percentage	Prevalence
0-10	216	102	47.22%	0.84
11-20	436	228	52.30%	1.88
21-30	396	252	63.63%	2.07
31-40	828	456	55.07%	3.75
41-50	726	306	43.71%	2.52
51-60	780	390	50%	3.21
61-70	684	282	41.22%	2.32
>70	504	402	79.76%	3.31

Table 3: Relation of various parameters with dry eyes

		0-10yr	10-20 years	21-30y	31-40yr	41-50yrs	51-60 yrs	61-70yrs	>70 yr
1	Smoking	0	28	22	100	56	70	55	140
2	Field work	90	100	106	206	150	200	137	52
3	Computer use with screen	0	20	16	20	10	10	10	10
4	Computer without screen	12	60	64	90	70	20	35	30
5	Medications (thyroid/ arthritis)	-	20	30	35	30	70	35	100
6	Medications (anti-anxiety)	-	-	22	15	6	20	10	70
7	Gender (males)	60	150	122	326	196	260	182	222
8	Gender (female)	42	78	130	130	110	130	100	180

Table 3: Frequency of eye related symptoms in the diagnosis of dry eyes (n=2418)

1.	12.5% have one symptom
2.	42.5% have two symptoms
3.	23.25% have three symptoms
4.	8.25%have four symptoms
5.	7% have five symptoms
6.	5.5% have six symptoms

Table 4: Percentage of dry eyes according to grading system

	Percentage
Grade 1	34.70%
Grade 2	45.4%
Grade 3	15.85%
Grade 4	3.97%

Out of total 12144 patients 4572 patients presented with symptoms of dry eye. After screening with Tear

film breakup time (TBUT) and schirmer's test, 2418 patients (19.91%) were diagnosed to be having actually dry eyes. Prevalence was found to be 12.55% in males and 7.41% in females.

The association of various dry eye signs; 13.23% have association with smoking, 19.47% of patients were on anti arthritis treatment and 5.91% have taken antipsychotic drugs. Total 43.05% of the patients were involved in outdoor work. 19.72% were actively computer users, only 3.97% were using with screen while 15.75% were using computer without screen.

As prevalence was also calculated for every decade from 0-10 to >70 years. It was lower in 0-10 years age groups. It may be due to the less exposure to sun light and dirty environment. Maximum prevalence was found in fourth decade .It may be due to more involvement in outdoor activity.

Majority of patients were having two symptoms (43%) while only very few cases (5.5%) were having six symptoms.

Discussion-The results of the study are comparable with other bench mark studies i.e. Salisbury,[5] Shihpai[6] and blue mountain[7] studies. It may be due to the similar climatic condition and the patient selection being very close to our selection criteria.

While comparing with an Indian study,[8] the results are different. It may be due to Tripura being the natural and cool climatic state as compared to Punjab. In this study, only 11% patients faced the problem of the dry eye as compared to 52.89% in our study.

Results are not comparable with the Women's health study,[9] where number of women affected with dry eye only 7.8%. But in our study the males were having more prevalence (12.55%) as compared to females (7.41%). This variation may be due to the more outdoor activity of the males as compared to females in hot and dry climate of Punjab. Other causes like cigarratte smoking and positive association of subjects with ptregium are comparable with other studies.[10]

In our study, females >70 years were having very high rate of dry eyes, this may be due to higher number of elderly female coming for eye examination. The dry eye was also found more prevalent in 2nd, 3rd and 5th decade in females. This is in correlation with other studies where peri and post menopausal women has more prevalence of dry eyes. In young females the higher rate is may be because of the more number of women working, using computer and driving vehicles now a days

Further, prevalence of dry eyes is highest in 31-40 years males due to active outdoor life so the dry eye was no more associated with age. It may be because younger individual are having more prevalence of dry eye as compared to the older ones. That is again due to more exposure to dry and hot environment.

Conclusion

In our study due to more number of working women has highly influenced the result. The incidence of dry eye found highly variable depending upon the geography, living style as well as with the work profile of the patient complaining of dry eyes.

Limitations

This study must be considered in the setting of its limitations. This study was hospital based, without referral information available for the patients, and therefore the findings cannot be directly extrapolated to the general population or private clinical setting. Furthermore, only some but not all DE signs were measured, and therefore we cannot comment on the epidemiology of these metrics (e.g. osmolarity, eyelid vascularity, and ocular surface inflammation) in our population.

Furthermore, our study was cross-sectional in nature, and as such, the temporal variability of symptoms and signs of DE in our population is unknown. We found that different risk factors are associated with different aspects of DE. This information is important for the clinicians as it supports the idea that DE is a heterogeneous condition with different patient populations being at variable risk for different components of disease.

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