

A Clinical Study on Prevalence of Dry Eye Disease among the Patients Attending O.P.D in a Tertiary Care Hospital in Assam

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Abstract: ***Objective:-** To study the prevalence of Dry eye disease among patients attending O.P.D. (Out Patient Department) of Assam Medical College for ophthalmic problems. **Materials and Methods:-**This is a prospective study conducted on 200 patients attending outpatient department of Assam Medical College & Hospital, Dibrugarh; Assam. The study was done from June,2016 to Nov,2016. This study was conducted based on tear film status which was evaluated by Schirmer's I Test, Tear film break up time and Tear meniscus height. **RESULTS:-** A total of 200 patients were enrolled in the study. Out of which 65 (32.5%) patients were found to have dry eye disease. The incidence of the dry eye disease was found to be high(39.13%) among the in 51-60 years age group, 22(27.5%) in males and 43(35.83%) in females. Most common presenting symptom was itching among 52 (80%) patients. Positive Schirmer's test-I(less than 10 mm.) were found in 63 patients(31.5%). **CONCLUSION:-** The prevalence of the dry eye is 32.5% according to the our Hospital based study. Dry eye incidence increases with the age. The females were affected more than the males.*

Keywords: Tear meniscus height, Schirmer's-I test, Tear film breakup time, Dry eye disease

1. Introduction

Dry eye disease (DED) is a common and chronic condition, which is considered a major health concern internationally. It causes eye discomfort and pain; it limits vision and reduces quality of life^[1]. It may be caused by disturbances of the natural function and protection of the external eye leading to an unstable tear film when the eye is open^[2]. The condition of the tear film formation and stability is governed by chemical characteristics of the tear film system and depends upon the proper functioning of the lacrimal apparatus. In order to fulfil its function, the tear film has to remain continuous between blinks. The presence of an abnormal tear film results in dry states that can be detrimental to vision. Dry eye is not a disease, but it is a symptom complex occurring as a sequel to deficiency or abnormality of tear film^[3].

Definition

- 1) **NEI DEFINITION(1995)**-Dry eye disease is a disorder of tear film due to reduced tear production or excessive tear evaporation, which causes damage to the inter-palpebral ocular surface and is associated with symptoms of ocular discomfort and or visual symptoms.^[4]
- 2) **DEWS DEFINITION(2007)**-Dry eye disease is a multifactorial disease of tear film and ocular surface that results in symptoms of discomfort, visual disturbance, and tears instability with potential damage to the ocular surface. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface^[5].

Purpose of Approach to Dry Eye Patients

To detect dry eye diseases early so as to improve the patient's comfort & prevent further structural damage to

ocular surface^[6].

Goals of Dry Eye Disease Study

- To identify the causes of dry eye.
- To establish the diagnosis of dry eye and differentiate it from other causes of irritation.
- To establish appropriate therapy & to give relief from discomfort.
- To educate & involve patient in management of this disease.
- To prevent complications such as loss of visual function, infection and structural damage

Epidemiology

Scenerio in India:-There is only 3 published reports on prevalence of dry eye among hospital-based population from North and Eastern India and the prevalence varies between 18.4% and 40.8%. Asian studies on dry eye disease showed prevalence of dry eye is higher than in western population and it is between 14.5% and 93.2%. It is widely agreed that Meibomian gland dysfunction is the most common cause of evaporative dry eye disease^[6].

Etiological Risk Factors

- Older age
- Female gender
- Arthritis
- Smoking and multivitamin use
- Hormone replacement therapy
- Caffeine use is associated with decreased use.
- Vitamin A Deficiency

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2. Materials and Methods

Aims and Objectives

- To study the prevalence of Dry Eye Disease among the patients seeking attention for ophthalmic problems.
- The early detection of cases and their treatment.
- To suggest recommendation for initiating correct counter measures.

Methodology: We randomly selected 200 patients from outpatient clinic of Assam medical college.

Type of study: Prospective study.

Place of study: Department Of Ophthalmology, Assam Medical College & Hospital; Dibrugarh.

Study duration: 6 months.

Patient population: Patient attending outdoor of Assam Medical College & Hospital; Dibrugarh.

Screening of patients: Individuals at the age group of 21-60 years who present with symptoms and signs of dry eye diseases like redness, itching and irritation, grittiness, foreign body sensation were selected.

Inclusion Criteria

- Patients age between 21 -60 years.
- Informed consent.

Exclusion Criteria

- Any infective condition of ocular adenexa.
- Lid abnormalities.
- Corneal ulcer.
- Patients undergone any intra-ocular and extra-ocular surgery.
- Age below 21 years or above 60 years.

Diagnosis

Patient history-

- Symptoms:-
 - a)Presenting complaints- Itching, redness, discharge, foreign body sensation, burning sensation, blurring of vision.
 - b)Exacerbating conditions-prolonged working hours in computer, reading, watching TV, air travel, wind, decreased humidity.
- Ocular History details-Topical medications used, contact lens wear, allergic eye disease, prior cataract surgery, refractive surgery, keratoplasty etc.
- Medical History details-Postmenopausal, Sjogren's syndrome, Rheumatoid arthritis, Diabetes mellitus, Bell's palsy, Parkinson disease, Lymphoma, Smoking or passive smoking, frequency of face washing including eyelid hygiene.

Examination of Dry Eye

- External examination
- Slit lamp examination

- **Schirmer's-I test-** It is performed by folding 5 mm. at the top end of a special schirmer test filter paper strip and placing it in the lower conjunctival sac of the open eye. It is placed at the junction of outer one-third and medial two-thirds of the lower lid, left in place for 5 minutes or until 30 mm. of the strip becomes wet. The strip is removed from the eye after 5 minutes and the wet portion measured. Wetting of less than 10 mm. is indicative of an aqueous tear deficiency^[2].
- **Tear film break-up time-** It is noted after applying an impregnated fluorescein strip moistened with non-preserved saline into lower fornix. Patient is asked to blink several times. The tear film is examined at the slit lamp with a broad beam using the cobalt blue filter. TBUT is defined as the interval between a complete blink and the first randomly distributed dry spot in cornea. A TBUT of 10 seconds has been recommended as a cut-off for normal individuals. Values less than this are reported to indicate an abnormal, unstable tear film suggestive of mucin deficiency^[7].
- Ocular surface dye staining-Fluorescein, Rose Bengal or Lissamine green dye are used to assess the extent of ocular damage^[6].
- Tear meniscus
- Fundus examination done with +90D and +20D(IDO)
- I.O.P. by Applanation Tonometer.

3. Results

Total 200 patients having symptoms of dry eye disease were enrolled in our study. 65 patients (32.5%) were found to have positive dry eye screening test.

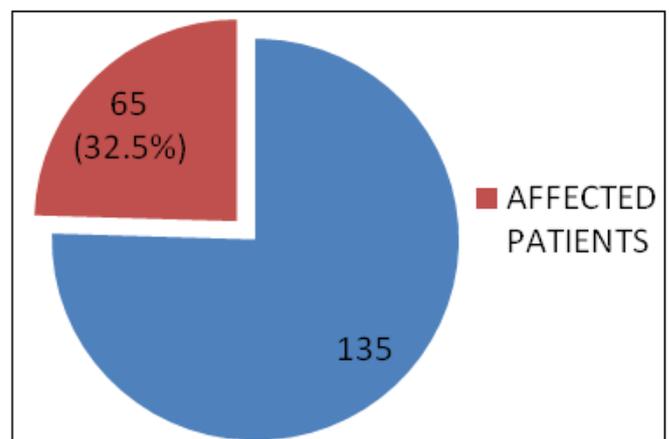


Figure 1: Distribution of affected patients among total patients

Among them maximum percentage(39.13%; 9 out of 23) of patients were in the age group 51-60 years, followed by 34.92% (22 out of 63) in the age group of 41-50 years, 30.77% (24 out of 78) in the age group of 31-40 years, 27.78% (10 out of 36) in the age group of 21-30 years.

Table 1: Age Distribution

Age group	Total samples	Affected samples	%(Percentage) Affected
21-30 Years	36	10	27.78
31-40 Years	78	24	30.77
41-50 Years	63	22	34.92
51-60 Years	23	9	39.13
Total	200	65	32.5

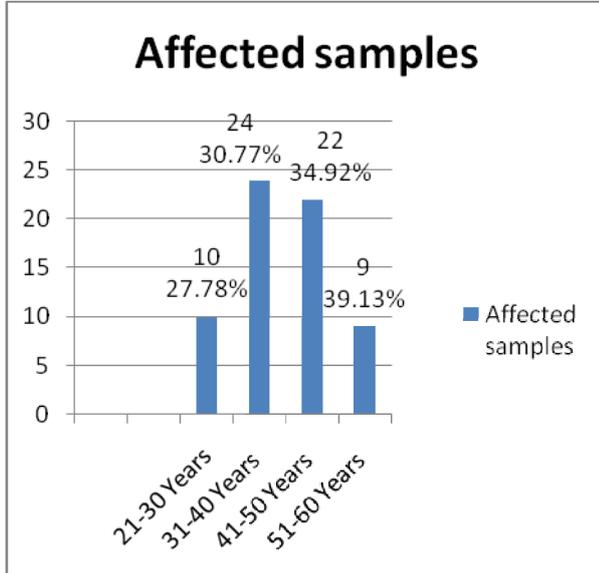


Figure 2: Age wise Distribution of Affected Patients.

Among total patients, 80 patients were male and 120 patients were female (M : F= 2:3). Among the affected patients 22 were male and 43 were female (M:F=1:1.95).

Table 2: Sex Distribution

Sex	Total samples	Affected samples	% age Affected	Ratio M : F	
				Total samples	Affected samples
Male	80	22	27.5	2 : 3	1:1.95
Female	120	43	35.83		
Total	200	65	32.5		

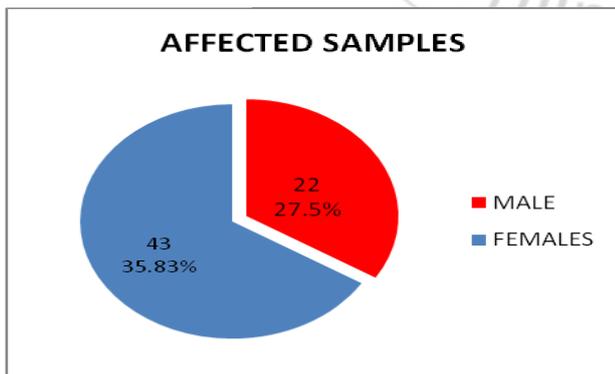


Figure 3: Sex Distribution of affected patients among total patients

52 patients (80%) presented with symptoms of itching, followed by burning sensation (24.62%), redness (16.92%), foreign body sensation (15.38%), episode of blurred vision (15.38%) and discharge (13.85%).

Table 3: Frequency of symptoms among affected population at first presentation

Symptoms	Total numbers	% age
Itching	52	80
Redness	11	16.92
Discharge	9	13.85
Foreign body sensation	10	15.38
Burning sensation	16	24.62
Blurring of vision	10	15.38

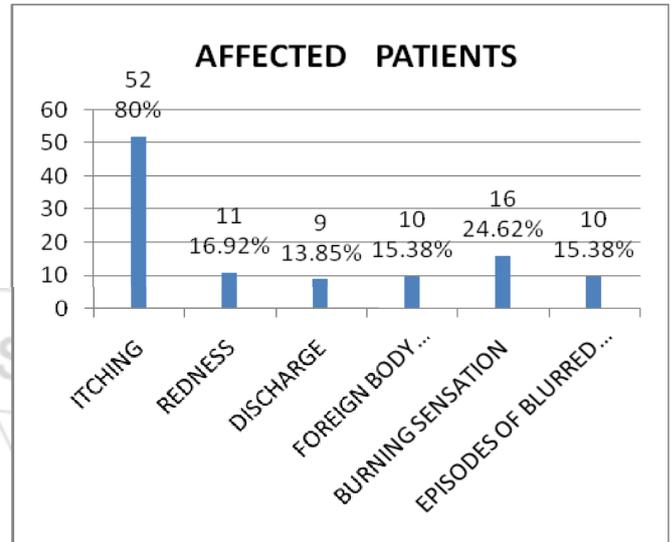


Figure 4: Distribution of Symptoms among the affected patients

4. Discussion

Reported prevalence of dry eye in the literature is diverse: ranging between 7.8% in one study from Western world^[9] and 93.2% in one study from Asia^[10]. There is no population-based study in relation to the dry eye diseases in India. However, there are only three published reports on the prevalence of dry eye among the Hospital-based population from the Northern and Eastern India and the prevalence varies in between 18.4% and 40.8%^[8],^[11-13]. In our study, the prevalence of dry eye was 32.5% and there is a relative peak in the dry eye prevalence in the age group of 51-60 years (39.13%) which is consistent with the findings in other dry eye studies. Suchi Shah and Harsha Jani showed in their study that maximum prevalence (32.5%) of dry eye were in the age group of 51-60 years^[14]. Mohammed Azhar Chisti et al. showed that the highest prevalence of dry eye was in the age group of 41-50 years (17.02%) followed by 51-60 years age group (15.56%)^[15].

In our study 22 males and 43 females were affected by dry eye diseases (M:F=1: 1.95). Amar Kanti Chakma et al. also showed in their study that male: female ratio was 1.15:1.9^[16]. Most studies report a higher prevalence of dry eye in females than males^[17-19]. Deficient tear secretion from estrogen deficiency in the menopausal women has been hypothesized to explain the sex difference.

In our study most frequent presenting symptoms were itching (80%) followed by burning sensation (24.62%), redness (16.92%), foreign body sensation (15.38%), episode of

blurred vision (15.38%) and discharge (13.85%). Mohammed Azhar Chisti et al. also showed that most frequent symptoms in their study were itching (45.45%) followed by burning sensation (40.90%), redness (31.81%), foreign body sensation (36.36%), episode of blurred vision (13.63%) and discharge (13.63%)^[15]. Suchi Shah and Harsha Jani also showed in their study that most frequent symptoms were itching followed by burning sensation^[14].

5. Conclusion

In conclusion, the prevalence of the dry eye is 32.5% according to our hospital-based study. The prevalence may be due to the geographical and climatic implication with a high degree of humidity and it is more among the urban population. Dry eye incidence increases with the age. The females were affected more than the males. The subjective symptoms of dryness can hide the diseases other than dry eye.

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