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A study on analysis of dry eye with schirmers test

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ABSTRACT

Aim

To evaluate the prevalence of Dry eye and the factors associated majorly, among patients attending ophthalmology outpatient department.

Materials and methods

This is a cross sectional study with 100 patients attending the ophthalmology OP department for whom Dry eye was evaluated by using Schirmers test paper which is a non invasive test and factors causing dry eye was evaluated by using questionnaire method.

Results

After conducting the Schirmers test, the prevalence was 48% in general of which mild, moderate, severe Dry eye were considered and prevalence among males and females, were 37% and 55% respectively. Factors majorly associated with Dry eye among patients attending ophthalmology outpatient department is discussed.

Conclusion

Among the patients who have been evaluated for Dry eye by using Schirmers test strips the major factors associated among them is Diabetes around 77% and the next major cause being use of anti hypertensive medications followed by ocular surgery which is 39% and 18% respectively. Followed by other factors. Prevalence being 48% and among males being 37% and females being 55%

Keywords: Dry eye, Schirmers test, Factors related to Dry eye

INTRODUCTION

Dry eye syndrome (DES) is one of the most common complaints worldwide among patients who visit ophthalmic clinics [1]. DES is a commonly used clinical term that covers a broad spectrum of ocular conditions that are characterized by irritation and discomfort on the eye surface, due to reduced production of tears or an increased tear evaporation rate. [2, 3]. Some of the anatomical and physiological modifications of the meibomian gland during aging have had been linked to androgen deficiency, [4]. Menopause causes oestrogen deficiency and a consequent change in the local hormonal milieu of the lacrimal gland. It is thought to decrease tear production and occurrence of dry eye in females. [5]. Common symptoms of DES include dry eyes, a foreign body

or a burning sensation in the eyes that is accompanied by excessive tearing and light sensitivity (photophobia) [6]. The typical risk factors for DES are old age, female sex, smoking, use of contact lenses, refractive surgery and living in a dry environment [7-9]. Cross-sectional study found a significantly higher prevalence of symptoms of dry eye or dry mouth among people who took diuretics or other hypotensive medications. [10] Use of video display terminals and learning (reading and writing) for long hours has been associated with a decreased maximum blink interval, hence the development of dry eye symptoms [11-13]. There are also reports that DES is significantly associated with both ocular discomfort and psychological states, such as depression and anger, and that it adversely affects the patient's quality of life [14, 15].

Need for the study

Therefore, the study is undertaken to assess the prevalence of Dry eye, and to analyze the risk factors and of Dry eye. We can avoid people with dry eye from further damage to the ocular surface and be able to manage the patients promptly and effectively, so that the patients will not have poor quality of life and vision due to dry eye syndrome.

METHODOLOGY AND RESEARCH DESIGN

Ethical Considerations

The study will be started after obtaining clearance from the Institutional Review Board (IRB) of Saveetha Medical College & Hospital. Written informed consent will be obtained from the study participants and information sheet regarding the study will be given to all the participants of the study.

Study setting and population

It is a cross sectional study conducted in, in patients and out patients who attend the ophthalmology department at Saveetha medical college hospital.

Procedure

In this cross sectional study, people are randomly screened and Dry eye is confirmed by performing the Schemers test, this test consists of placing a small strip of filter paper inside the lower eyelid (inferior fornix). The eyes are closed for 5 minutes. The paper is then removed and the amount of moisture is measured. This test is performed by our facilitator. Which is read as

1. Normal which is >15mm wetting of the paper after 5 min.
2. Mild which is 14-9mm wetting of the paper after 5 min.
3. Moderate which is 8-4mm wetting of the paper after 5 min.
4. Severe which is <4mm wetting of the paper after 5 min.

And the questionnaire is given to analyse the risk factors and etiology of Dry eye. Details of the study will be explained to the study participants who will be given information sheet and informed consent will be obtained. Basic demographic details regarding name, age, sex will be collected from the study participants

Exclusion criteria

Patients with preexisting ocular disease like glaucoma, uveitis, lid disorders (blepharitis, meibomianitis, ectropion, entropion, lagophthalmous, trichiasis), ocular allergies, pterygium, corneal opacities, people using contacts were excluded. Andthose who are not willing to participate in the study are excluded.

Inclusion criteria

People who are willing to participate in the study, there is no age limit in the study

Data collection

The data was collected after the informed consent is obtained and the dry eye was confirmed by performing the Schirmers test which is a non invasive test. If Dry eye is present risk factors would be analysed by interview method.

In, inpatients and out patients attending ophthalmology department at Saveetha medical college hospital and analyzing the risk factors of Dry eye.

Expected outcome

It is expected that this study will help us in knowing the prevalence of Dry eye among, In patients and out patients attending ophthalmology department of Saveetha medical college hospital and analyzing the risk factors of Dry eye

Limitations of the study

The Schirmers test cannot be performed for non co operative patients and children.

RESULTS

Data from 100 patients attending ophthalmology outpatient department including 40 males and 60 females were studied.

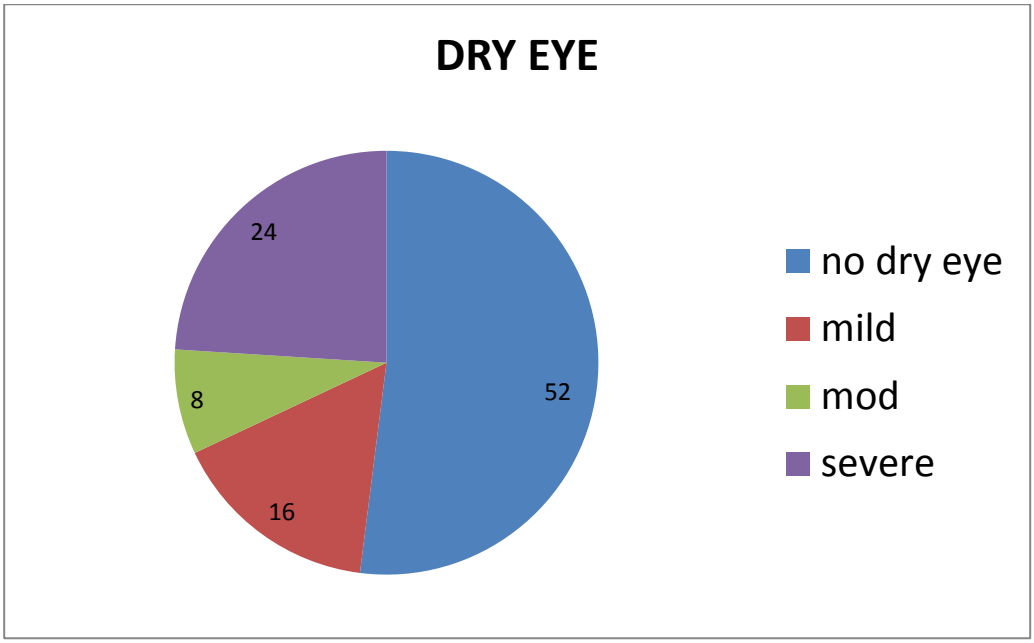

Fig 1: **Shows patients with Dry eye classified as mild, moderate and severe**

In fig 1: The results shows among the patients who had dry eye (48%) mild cases were 16% and moderate 8% and severe 24%

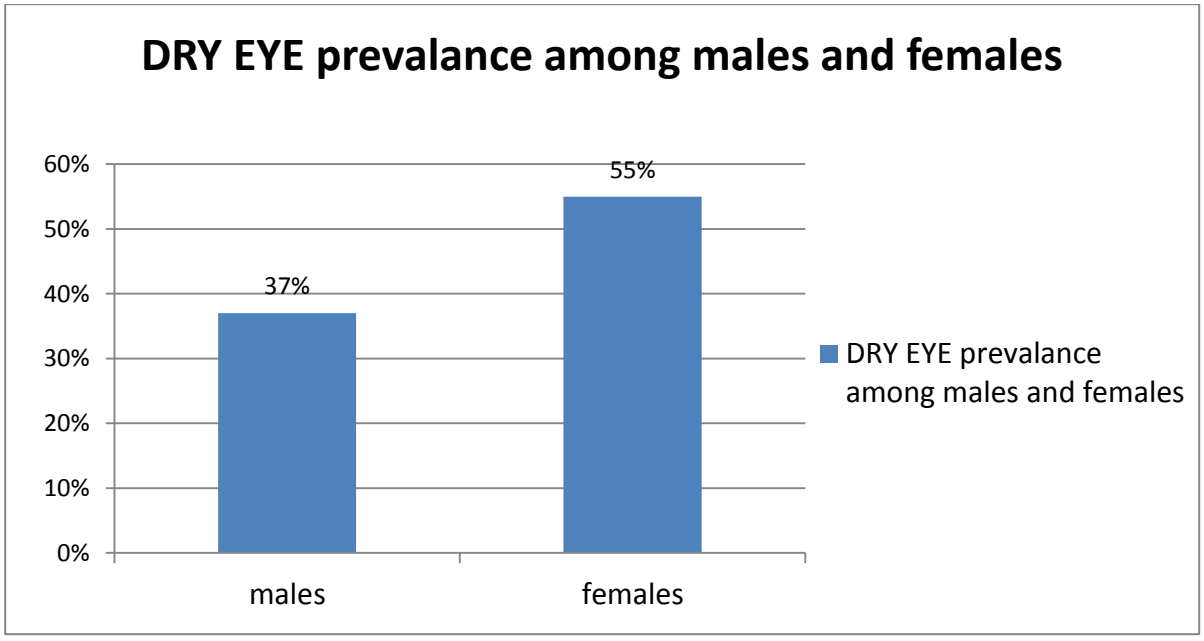

Fig 2: Shows Dry eye prevalence among males and females

In fig 2: The results being dry eye among males 37% and among females 55%

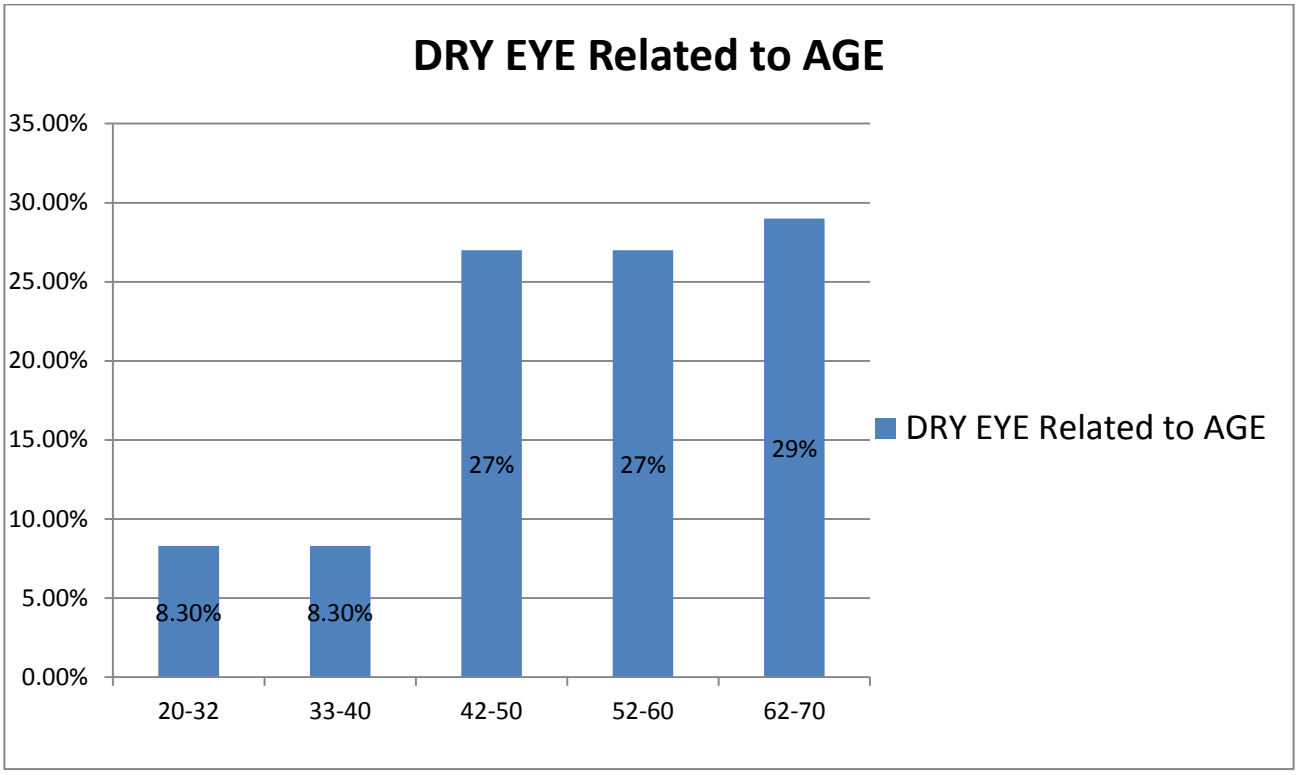

Fig 3: shows Dry eye prevalence among different Age groups.

In fig 3 the prevalence among 20-32 and 33-40 age group is 8.3%, between 42-50, 52-60, 62-70 the prevalence is 27%, 27%, 29% respectively

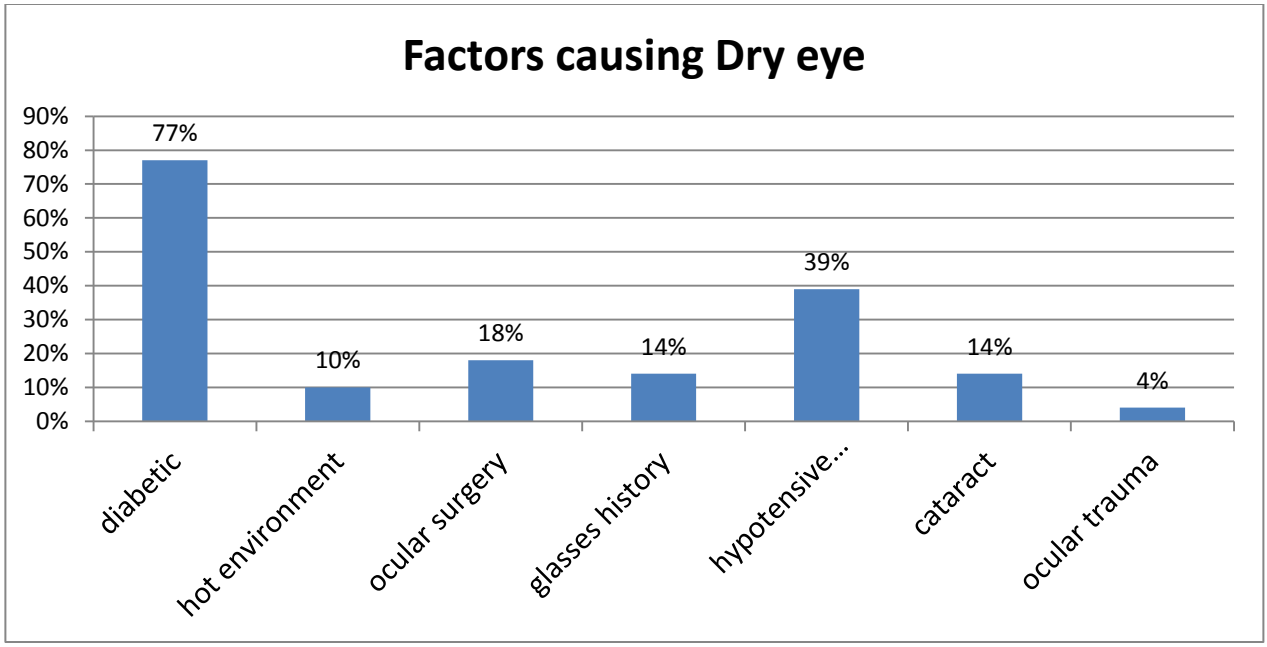

Fig 4: Shows major factors causing Dry eye

In fig 4 The factors causing Dry eye have been shown .Diabetic being 77%, hot environment 10%,ocular sugery18%,glasses history 14%,hypotensive medication39%,cataract14%and ocular trauma 4%.

DISCUSSION

Among many studies which were conducted related to Dry eye suggest that prevalence ranges from 10.8% to 57.1%. [17-21, 9] The vast disparity in dry eye prevalence stems mainly from the different dry eye diagnostic criteria employed and different cut-off values for objective dry eye tests**.** Our, Dry eye prevalence of 48% falls within this range.

In our study, dry eye prevalence increased with age, but there is only narrow margin of increase in prevalence between 42-70 years of age. Hichiki [17] in their study also discussed about it.

Most studies report a higher prevalence of dry eye in females than males [9, 16, 19] Our study was no exception; 55% females in the present study had dry eye compared to 37% males. Menopause causes oestrogen deficiency and a consequent change in the local hormonal milieu of the lacrimal gland. It is thought to decrease tear production and occurrence of dry eye in females.

In our study the major factors prevalent among the patients attending our OPD was Diabetes being 77% and among patients taking hypotensive medication predominantly being beta blockers was 39% , ocular surgery being 18% ,glasses history and presently those who have cataract and not being treated is 14% , hot environment being 10% and ocular trauma being 4%.

The factors being associated in our study, was collected through questionnaire by interview method, hence in Park HW[1], et al studies have shown association dry eye and metabolic syndromes in that they have taken all the metabolic causes and also diabetes and hypertension and showed prevalence of about 37.23% among males and 29.97% in females.

In contrast our study showed 25% among males and 41.66% among females hence more researches must be conducted on this.

The other factors of dry eye as much less prevalent than diabetes and anti hyperetensives among cohort of patients attending ophthalmology OPD.

And in our study Dry eye prevalence was evaluated as mild, moderate and severe according to the criteria and among the 48 cases, 24 were severe, 8 had moderate and 16 had mild Dry eye, hence the severe Dry eye prevalent is more, this shows that people were attending the clinics late.

Limitation present in this study is we collected data from 100 people attending ophthalmology OPD, the factors associated were collected through questionnaire, and we excluded patients with lid problems and conditions which cause hyper lacrimation.

A discussion of the sensitivity, specificity, of the questionnaire related to factors causing Dry eye responses and the objective test employed is beyond the scope of this article.

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