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Frequency and Risk Factors of Symptomatic Dry Eye Disease at Tertiary Care Eye Hospital, Karachi

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Abstract

Objective: To determine frequency and risk factors of symptomatic dry eye disease at tertiary care eye hospital, Karachi.

Material & Methods: This was a descriptive cross sectional study carried out at Al-Ibrahim Eye Hospital, Isra postgraduate Institute of Ophthalmology, Karachi from March to October 2016. Non-Probability purposive sampling technique was used for data collection. Inclusion criteria were patients aged ≥ 21 years and on the basis of dry eye symptoms. Exclusion criteria were other systemic eye disease and those who did not give consent. Symptoms of dry eye were assessed using Tear breakup test (TBUT) test. SPSS version 20.0 was used to analyze data.

Results: A total of 100 patients 65 female and 35 male were diagnosed with dry eye syndrome. The age group of 21-30 years having the highest frequency of 34 patients, whereas after the 50 years of age the frequency of patients decreases to 21. Frequency of dry eye was found to be 2.4% in this study. Confirmation of the dry eyes were found in 41% of the respondents while 59% were found normal. Among all the associated risk factors 22 patients were included in allergy, 9 patients were having keratitis, 05 patients were found dry eye due to use of drugs, 1 patient was using contact lens and rest 63 were having dry eyes due to other causes which includes pterygium, conjunctivitis, blepharitis, depression and senile.

Conclusion: Frequency of dry eye disease was found to be lower in this study. Dry eye syndrome is more common in female than male. It is closely related to its symptoms and most frequently it was found in young patients than older due to their lifestyle. The most reoccurring risk factors for dry eye syndrome were allergy, keratitis, blepharitis and conjunctivitis.

Keywords: Dry eye; Risk factors; Tear breakup test (TBUT)

Introduction

Dry eye (DE) is a condition in which a person doesn't have enough quality tears to lubricate and nourish the eye. Tears are necessary for maintaining the health of the front surface of the eye and for providing clear vision. Dry eye is a common and often chronic problem, particularly in older adults [1]. The epidemiology of DE has been evaluated in several large population-based studies both in the United States and abroad with a wide range of frequencies reported for DE symptoms (6%-50%), signs (16%-85%), and symptoms plus signs (73%-93%) [2-4]. The prevalence of dry eye in Pakistan is 3.3% between 10-30 years of patients, 20 % between 30-40 years of patients, 33.3% between 40-50 years of patients, 23.3% between 50-60 years of patients and 6.6% between 60-70 years of patients. 30% dry eye was caused due to keratitis, 20% was result of bacterial and viral conjunctivitis and 10% was due to pterygium [5]. The study with 85% symptom frequency of dry eye ascertained signs by positive tear film break-up time (TBUT) in elderly Korean population [6,7]. Reported prevalence of dry eye is diverse, with questionnaire based surveys documenting rates ranging from 14.4% to 33% of the population sampled. Studies which also involve tests of tear function including Schirmer's test, tear film break up time, fluorescein staining, for determination of dry eye have found generally lower prevalence rates [8].

Risk factors for symptomatic dry eye disease are Keratitis, allergy, contact lens, several drugs, thyroid disease, Lasik, Pterygium and smoking. Keratitis is an inflammation of the cornea, the cornea is the outermost part of the eye that covers the pupil and iris. The most common causes of keratitis are infection and injury. Bacterial, viral, parasitic and fungal infections can cause keratitis. An infectious keratitis can happen after an injury to the cornea. But an injury can inflame the cornea without a secondary infection occurring. People who wear contact lenses are at increased risk for infectious keratitis. Lens wear should stop immediately if a person suspects that he or she is developing an eye infection [9]. Eye allergy occurs when something you are allergic to irritates the conjunctiva. This is the delicate membrane covering the eye and the inside of the eyelid [10]. Symptoms of dry eyes can be more pronounced if you wear contact lenses and your contacts start to dry out, too [11]. Contact lens discomfort can occur but is usually easily remedied [12]. Dry eye is a

multi-factorial disease of the tears and ocular surface; one such factor is the patient's use of systemic medications [1]. Many common systemic medications can affect ocular tissues, and medications that contribute to dry eye symptoms are present in many categories of commonly prescribed medications. Thyroid eye disease is an autoimmune condition that affects the eyes causing swelling, inflammation and sometimes visual problems. Early symptoms of thyroid eye disease are itching, watering or dry eyes and a feeling of grittiness of the eyes. Laser-assisted in situ keratomileusis (LASIK) is a frequently performed corneal refractive surgery with excellent refractive outcomes. The most common complication of LASIK is dry eyes, with virtually all patients developing some degree of dryness in the immediate postoperative period [13]. Pterygium is a common eye condition that affects people who spend a lot of time outdoors. Because it often affects surfers, it is also known as surfer's eye. It can affect anyone, even though children who don't wear sunglasses outside [14]. Tobacco smoke is a known eye irritant and worsens dry eye. People who smoke are nearly twice as likely to have dry eyes [15]. The present study is designed to know the frequency and most recurring risk factors of Dry Eye Syndrome in patients attending tertiary eye care hospital, Karachi-Pakistan.

Methodology

This was a descriptive, cross sectional study carried out at General OPD of Al Ibrahim eye hospital, Isra postgraduate institute of ophthalmology, Karachi from March to October 2016. Non-Probability purposive sampling was used for selection of patients. The sample size was calculated from the online software "Raosoft.com" by taking 5% margin of error, 95% Confidence interval. The required sample size was found to be 100. Sample selection criteria for inclusion were Patients have symptoms of dry eyes, aged ≥21 years and Patients who give consent. Exclusion criteria were Patient must younger than 21 years and other systemic eye disease.

Data collection procedure

After registration patients were checked by Autorefractometer, Visual acuity, Refraction, Patient complete history and Tear film test by slit lamp. Local anesthesia, Fluorescein strips and Slit lamp 90 D fund us examination (UV light) were also used.

Data analysis

The data was analyzed through the software Statistical package for social sciences (SPSS) version 20.0. The entire continuous variables were presented as Mean ± SD. All categorical variables were presented as frequency and percentages. Bar and Pie chart was also used to show the data.

Result

A total of 100 patients and 200 eyes were included in the research, which laid in our inclusion criteria of age and were having symptoms of dry eyes. In this study 65% of patients were female and rests were male (Figure 1). Frequency of dry eye was found to be 2.4% in this study. Confirmation of Dry eye were found in 41% of the respondents while 59% were found normal. Among 41 dry eye patients 25 were female and 16 were male (Figure 2). The age group of 21-30 years having the highest frequency of 34 patients. Whereas, after the 50 years of age the frequency of patients decreases to 21 (Figure 3). Among all the associated risk factors 22 patients were found with allergy, keratitis was seen in 9 patients, 05 patients were having dry eye due to use of several drugs, only 1 patient was using contact lens and rest 63 were having dry eyes due to other causes which includes pterygium, conjunctivitis, blepharitis, depression, senile, vitamin A deficiency and senile (Table 1). Dry eyes were more common (12 respondents) in younger age group 21-30 years. It is again increasing in the age of 60 years (8 respondents) (Figure 4).

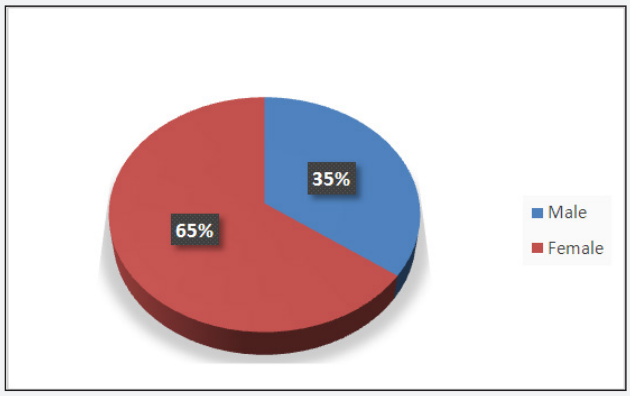

Figure 1: Classification of Gender.

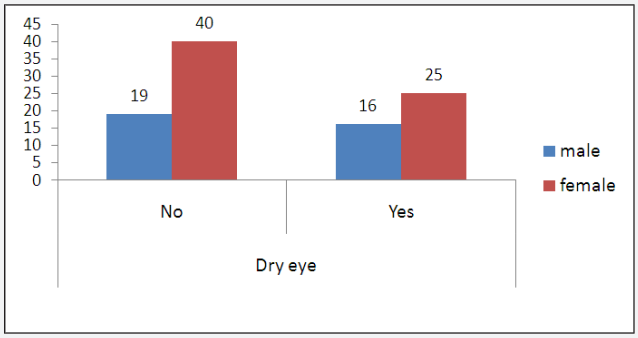

Figure 2 : Gender wise classification of Dry Eye disease.

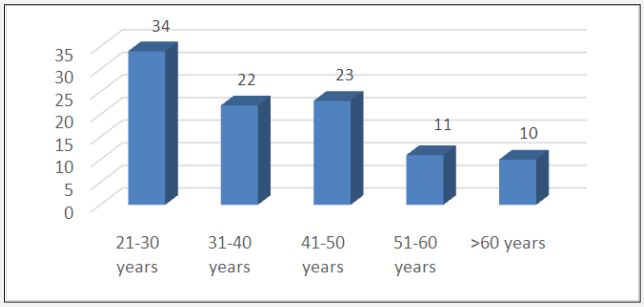

Figure 3 : Age Distribution.

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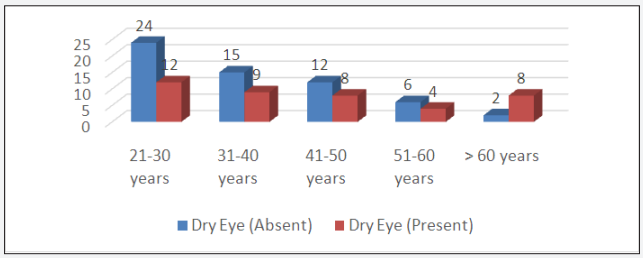

Figure 4 : Presence of Dry Eye with Age (years).

Table 1: Frequency of Risk factors in Dry Eye disease.

Risk factors of Dry Eye	Frequency
Keratitis	9
Allergy	22
Contact lens	1
Several drugs/Medications	5
Others (Pterygium, Conjunctivitis, Blepharitis, Depression and Senile)	63
Total	100

Discussion

In this cross sectional study the frequency and risk factors for symptomatic dry eye disease were determined. The frequency of dry eye was found to be 2.4% in this study. Compared with some of the other Asian regions and countries, the frequency of Dry Eye Syndrome (DES) in this Compared with some of the other Asian regions and countries, the pooled prevalence of DES in this research was lower which was 2.4%. There is remarkable discrepancy in the prevalence in different geographic regions in Pakistan, with Western and Northern China presenting higher prevalence, possibly because of the difference in the climate conditions and geographic characteristics. In Korea, the adjusted prevalence of dry eye disease was 33.2% in 657 subjects aged 65 years or older [16], while in this study the frequency of dry eyes was found to be 2.4% in 100 patients ≥21 years. In present study, 100 patients, 65 were female and rests were male. Among 41.0% of dry eye patients 25% were female and 16% were male while according to a research done in US [17] had showed 34% of dry eye patients in which 12% were male and 22% female patients had diagnosed with of DES. However similar results reported in a Japanese study [4] 21.6% of the female individuals aged 40 years or over were diagnosed with dry eye disease or severe symptoms, significantly higher than their male counterparts were 12.5%.

A Study found that 33.7% of individuals aged ≥65 years in Taiwan were symptomatic, as defined by the reporting of one or more dry eye symptoms often or at all times [18]. In the present study, there was a discrepancy in the prevalence between our data and findings in other Asian regions and countries. However present study showed 10% of patients above >60 years found to have dry eye due to pterygium, posterior blepharitis, age.

In present study, age group of 21-30 years having the highest frequency of 34 patients. Whereas after the 50 years of age the frequency of patients decreases, however a research conducted in Denmark shows that dry eyes were most frequent in persons aged 50-59 years [19]. In this study, Among those 41 patients, most of the patients were included in allergy, some patients were having keratitis, few were having dry eye due to use of several drugs, 1 patient was using contact lens and rest 63 were having the symptoms of dry eyes due other causes which includes pterygium, conjunctivitis, blepharitis whereas, according to a research held in Allama Iqbal Medical college, Service hospital, Lahore most of the patients diagnosed with corneal pacification and others diagnosed with keratitis, trichiasis and vitamin A deficiency [20]. A study was done in Mainland China [16] showed alcohol, smoking, computer use, contact lens wear, and systemic or ocular medications were Risk factors for DES. Whereas in the present study found keratitis, blepharitis, allergy, conjunctivitis, contact lens usage and old age as a risk factor of DES.

Conclusion

Frequency of dry eye disease was found to be lower in this study. Dry eyes syndrome is more common in female than male. It is closely related to its symptoms and most frequently it was found in young patients than older due to their lifestyle, and the most reoccurring risk factors for dry eye syndrome were allergy, keratitis, blepharitis and conjunctivitis.

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