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DRY EYE SYNDROME;
FREQUENCY IN ADULT PATIENTS ATTENDING THE EYE CLINIC IN MILITARY HOSPITAL RAWALPINDI.

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ABSTRACT... Objective: To determine the frequency of dry eye syndrome in adult patients. **Study Design:** A descriptive study. **Setting:** Eye Department Military Hospital Rawalpindi. **Period:** From June 2004 to December 2004. **Patients and methods:** A total of hundred patients were randomly selected from the daily OPD at eye department, MH Rawalpindi. They were tested for the presence of dry eye syndrome by Rose Bengal staining, Schirmer tear strip measurements and Tear film break up time. **Results:** A total of 67 males and 33 females were recruited. Out of these 10 males and 6 females were found to be having dry eye syndrome. Mean patient age was 34.3±1.3years (range 20–60 years). **Conclusion:** The frequency of dry eye syndrome in adult patients attending the eye clinic of Military Hospital Rawalpindi is 16%.

Key words: Dry Eye Syndrome, Rose Bengal staining, Schirmer Tear Strip, Tear Film Break Up Time.

INTRODUCTION

Dry eye is a common disorder of the tear film that results from decreased tear production, excessive tear evaporation, or abnormality in mucin or lipid components of the tear film[1]. Keratoconjunctivitis sicca (KCS) is the name given to the ocular surface disorder that develops in patients with aqueous tear deficiency (ATD), and is the most common cause of dry eye[1,2]. Dry eye, either alone or in combination with other conditions, is a frequent cause of eye irritation that causes patients to see ophthalmologic care[3]. While these symptoms often improve with treatment, the disease usually is not curable, which may be a source of patient and physician frustration. Dry eye can be a cause of visual morbidity and may compromise results of corneal surgery.

Epidemiological information on dry eye syndrome has been limited by lack of uniformity in its definition and the inability of any single diagnostic test or set of diagnostic tests to confirm or rule out the condition definitively. There is no doubt, though, that it is a common condition that causes varying degrees of discomfort to disability. While clinic-based studies confirm its frequency (17% of 2127 consecutive new outpatients were diagnosed with dry eye following comprehensive examination), such studies may not reflect the overall population[4]. In a population based sample of 2520 elderly (65 years old or older) residents of Salisbury, Maryland, 14.6% were

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symptomatic, which was defined as reporting one or more dry eye symptoms often or all the time[3].

The combination of being symptomatic and having a low Schirmer test (≤5 mm with anaesthesia) or a high rose bengal score (≥5) was seen in 3.5% of the residents. Depending on which of these two percentages is used, extrapolating to the United States population aged 65 to 84 yields estimates of approximately 1 million to 4.3 million people who have dry eye. A population based study of dry eye conducted in Melbourne, Australia used different criteria for positive testing and thereby reported higher percentages of the 926 participants aged 40 to 97 with a low Schirmer test (16.3%≤8 mm) or a high rose bengal score (10.8%≥4)[5]. The prevalence of self reported dry eye in 3722 participants of the Beaver Dam (Wisconsin) Eye Study varied from 8.4% of subjects younger than 60 to 19.0% in those older than 80, with an overall prevalence of 14.4%[6]. Estimates of dry eye prevalence based on treatment-derived estimates yield much lower percentages. A study evaluating medical claims data for nearly 10 million enrollees in managed care plans found that dry eye was diagnosed or treated in 0.4% to 0.5% of the enrollees[7].

Older age and female gender have been identified as risk factors for dry eye in three of these four large epidemiological studies[5-7]. Arthritis was evaluated as a risk factor in two studies and found to be associated with an increased risk of dry eye in both[5,6]. The Beaver Dam Eye Study found that after controlling for age and gender, smoking and multivitamin use were associated with and increased risk of dry eye, whereas caffeine use was associated with a decreased risk[6]. Within the 25665 postmenopausal women in the Women's Health Study, Schaumberg et al reported that hormone replacement therapy, and in particular estrogen use alone, was associated with an increased risk of clinically diagnosed dry eye syndrome or severe symptoms[8].

A study was conducted in our hospital to determine the frequency of dry eye syndrome among the patients attending the eye clinic.

PATIENTS AND METHODS

A hundred adult patients(18 to 70 years of age) and both sexes (both serving and retired armed forces personnel and their families) were included in this study during June 2004 to December 2004.All these patients complained of grittiness, irritation, foreign body sensation, burning and excessive watering from the eyes. The patients of ocular trauma were excluded. History was taken from each patient regarding the presence or absence of any of the symptoms of dry eye syndrome. They were also asked about discharge from the eyes and nature of the discharge if present. They were asked about any fluctuation in the visual acuity and seeing of haloes. Questions were asked about any injury to the eye and any previous ocular or general surgery. They were asked about use of any systemic or local drugs and if the answer was in affirmative, its exact nature and duration. They were also inquired about the presence of any systemic disease e.g. diabetes mellitus, hypertension, ischemic heart disease and connective tissue disorders etc. They were asked about history of allergy to systemic or local drugs. Questions were asked about personal history and occupation etc. A detailed ocular examination including visual acuity, tonometry, torch examination, slit lamp biomicroscopy and fundoscopy was performed for each patient. All the patients were tested for the presence or absence of dry eye syndrome by Rose Bengal staining, tear film break-up time measurement and Schirmer tear strip measurement. Data was recorded in Microsoft Excel program and descriptive statistics (frequencies, percentages) were used for analysis.

RESULTS

Out of the hundred selected patients (67 males and 33 females), 16 of them (10 males and 6 females) were found to be having dry eye syndrome. The ratio of dry eye was found to be higher in males and in the age group 41 to 50 years. Dry eye was lesser in young individuals (age 20 to 30 years).

DISCUSSION

This population based study has found that the age adjusted prevalence of dry eye syndrome often or all the time was 16%. Dry eye symptoms increased with age and male sex.Population based studies evaluating dry eye differ in the choice of dry eye questionnaire and objective tests, definitions of dry eye and the selection of the study population. Comparisons between the studies

are thus difficult. The Salisbury Eye Evaluation study (SEE Study)[16], utilizing the same validated questionnaire to evaluate and define dry eye symptoms, found 14% of participants reported one or more of the six dry eye symptoms often or all the time. Dry eye prevalence decreased to 2.0% when rose bengal tests were added[16]. Although the participants of SEE study were 65 years or over, the prevalence of dry eye symptoms in our subjects 60 years or over was still twice as high (30.0%). Possible explanations for prevalence differences include ethnic extraction, participation rates and environmental conditions. As our study was conducted in Pakistan increased sunlight exposure and ambient temperature may increase the frequency of dry eye symptoms, whereas high humidity could be protective. In the Beaver Dam Study[17], dry eye was defined as a positive response to the question: "For the past 3 months or longer have had dry eyes?" with further prompting: "foreign body sensation, with itching, burning, sandy feeling, not related to allergy?" if required. They found an overall prevalence of dry eye of 14.4%. In a study conducted in Melbourne, Austrailia[18], 5.5% of subjects reported any severe symptoms of dry eye including discomfort, foreign body sensation, tearing, dryness, or photophobia and 10.8% by Rose Bengal staining. Other studies using self administered questionnaires to determine dry eye have found generally similar rates (28.7% for the Canadian Dry Eye Epidemiology Study (CANDEES)[19] and 33% for a Japanese population based study[20]). In these studies, poorer response rates (15.6% for CANDEES and 23% for the Japanese study) and the use of self administered questionnaires would have contributed to selection and reporting bias respectively. Strength of my study lies in the fact that patients complaining of the six recognized symptoms of dry eye syndrome were tested for the presence or absence of dry eye syndrome. Thus the results reproduced here are more objective than other studies.

The main limitation of my study is that objective tests of dry eye syndrome like rose bengal staining, Schirmer's test and tear film break-up time lack sensitivity and underestimate dry eye compared with self reported symptoms[17, 18, 21]. Moreover, fluorescein itself can reduce the break up time of tear film[22] and individuals can test positive for rose bengal and Schirmer's tests without having symptoms of dry eye[20].

Also documented risk factors of dry eye such as arthritis, caffeine use, thyroid disease, gout, total to high density lipoprotein cholesterol ratio, diabetes, and multivitamin use[17] were not investigated in this study.

CONCLUSION

My prevalence survey of dry eye has been valuable in identifying several relevant factors. I have been able to show that dry eye occurs in indigenous population of Pakistan, previously anecdotal in nature, and that the prevalence rate of dry eye syndrome in patients attending eye clinic of Military Hospital Rawalpindi is 16%. My research also established that although the number of patients complaining of symptoms of dry eye syndrome is high but objective tests show that prevalence of dry eye syndrome in such patients is less. My study was limited to a specific hospital but further multicentre studies evaluating the prevalence of dry eye syndrome would be of value.

REFERENCES

1. Ekong AS, Foster CS. **Dry eye syndrome** [online] 16 May 2004 [cited 2004 12 May]. Available from: URL://www.emedicine.com/linkus.htm

2. Sheppard JD. **Dry eye moves beyond palliative therapy.** P&T digest [serial online] December 2003; 8 [cited 2004 12 May] Vol 12 No.12. Available from: URL:htp//www.managedcaremag.com/supplements/0312ptd dry eye/0312.ptd dryeye mc.pdf.

3. Gipson IK, Tisdale AS: **Visualization of conjunctival goblet cell actin, cytoskeleton, and mucin content in tissue whole mounts.** Exp Eye Res 65:407, 1997.

4. Wei ZG, CitsarelisG, Sun TT, et al: **Label-retaining cells are preferentially located in forniceal epithelium: Implications on conjunctival epithelial homeostasis.** Invest Ophthalmol Vis Sci 36:236, 1995.

5. Newell FW: **Anatomy and embryology. In ophthalmology principles and concepts.** Seventh ed: Mosby yearbook, 1992:44.

6. Schein OD, Munoz B, Tielsch JM, et al. **Prevalence of dry eye among the elderly.** Am J Ophthalmol 1997; 124:723-8.

7. Hikichi T, Yoshida A, Fukui Y, et al. **Prevalence of dry eye in Japanese eye centres.** Graefers Arch Clin Exp Ophthalmol 1995;233:555-8.

8. McCarty CA, Bansal AK, Livingston PM, et al. **The epidemiology of dry eye in Melbourne, Austrailia.** Ophthalmology 1998;105:1114-9.

9. Ogawa Y, Okamoto S, Wakui M, et al. **Dry eye after hematopoitic stem cell transplantation.** Br J Ophthalmol 1999;83:1125-30.

10. Deuschl G, Goddemeier C. **Spontaneous and reflex activity of facial muscles in dystonia, Parkinson's disease, and in normal subjects.** J Neurol Neurosurg Psychiatry 1998;64:320-4.

11. Lemp MA, **Report of the National Eye Institute/Industry workshop on Clinical Trials in Dry Eyes.** Clao J 1995;21:221-32.

12. Schein OD, Tielsch JM, Munoz B, et al. **Relation between signs and symptoms of dry eye in the elderly. A population based perspective.** Ophthalmology 1997;104:1395-401.

13. Goren MB, Goren SB. **Diagnostic tests in patients with symptoms of keratoconjunctivitis sicca.** Am J Ophthalmol 1988;106:570-4.

14. Clinch TE, Benedetto DA, Felberg NT, Laibson PR. Schirmer's test. **A closer look.** Arch Ophthalmol 1983;101:1383-6.

15. Pflugfelder SC, Tseng SC, Sanabria O, et al. **Evaluation of subjective assessments and objective diagnostic tests for diagnosing tear-film disorders known to cause ocular irritation.** Cornea 1998;17:38-56.

16. Schein OD, Munoz B, Tielsch JM, et al. **Prevalence of dry eye among the elderly.** Am J Ophthalmol 1997;124:723-8.

17. Moss SE, Klein R, Klein BEK. **Prevalence of and risk factors for dry eye syndrome.** Arch Ophthalmol 2000;118:1264-8.

18. McCarty CA, Bansal AK, Livingstone PM, et al. **The epidemiology of dry eye in Melbourne, Australia.** Ophthalmology 1998; 105:1114-19.

19. Caffery BE, Richter D, Simpson T, et al. **The Canadian dry eye epidemiology study. In: Sullivan DA, et al, ed. Lacrimal gland, tear film and dry eye syndromes 2.** New York: Plenum Press, 1998:805-6.

20. Shimmura S, Shimazaki J, Tsubota K. **Results of a population-based questionnaire on the symptoms and lifestyles associated with dry eyes.** Cornea 1999;4:408-11.

21. Schein OD, Tielsch JM, Munoz B, et al. **Relation between signs and symptoms of dry eye in the elderly—a population-based perspective.** Ophthalmology 1997;104:1395-401.

22. Taylor HR. **Studies on the tear film in climactic droplet keratopathy and pterygium.** Arch Ophthalmol 1980;98:86-8.