Original Research Article

Study of dry eye syndrome in Vijayawada population - A retrospective study

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Abstract

Background: Dry eye syndrome (DES) is very common problem globally irrespective of age and gender. Due to excessive exposure to Smartphones, T.V, air pollution and malnutrition. Hence various parameters were used to grade the severity of diseases. **Method:** 85 patients aged between 25 to 65 years having DES were studied – OSDI scale was used, based on OSDI scale TBUT, schirmers test, CIC test carried out. **Results:** The age group was 12(14%) between25-35years 33 (38.8%) were between 36-45,14 (16.4%) were between 46-55, 26(30.5%) were 55-65 years old. Grades of DES was 12 (14.1%) mild, 48(56.%) moderate 25(29.4%) had severe DES. Mean values of schirmers test was 13.52+3.72, TBUT test 9.8+1.90. CIC mean value was 2.60+ +1.17. The Associated diseases like 16 hypertension patient had OSDI 18 (56.3), 10 Tuberculosis patients had OSDI 17(58.8%) which is significant (OSDI > 55 is significant) **Conclusion:** As DES is multi-factorial Eye disease. It is an enigma for ophthalmologists to diagnose. Hence many tests and techniques are required to confirm the diagnosis for proper treatment

Key words: OSDI- Ocular surface Disease Index, TBUT= Tear film break up time, CIC= conjunctival impression cytology. Schirmer test, DES, Dry Eye syndrome.

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INTRODUCTION

Dry eye syndrome is a chronic disorder of the ocular surface that can substantially affect the quality of life of an individual1. Dry Eye syndrome (DES) is a multi-factorial disease, results into symptoms of discomfort, visual disturbance and tear film instability with potential damage to the ocular surface. The syndrome is accompanied by increased Osmolarity of the tear film and inflammation of the ocular surface2. The signs and symptoms include a stinging burning or scratchy sensation, the feeling that, there is a foreign substance in the eyes, the presence of stringy mucus in or around the eyes, increased eye irritation from smoke or wind, Ocular fatigue after short period of reading, Difficulty in wearing contact lenses, increased discomfort after reading, watching television, or working on the computer and a blurring of vision that improves with blinking. Tear film deficiencies are amongst the most common eye problem3. OSDI, schirmers test TBUT, CIC test are proved ideal to grade the DES and treat accordingly.

MATERIAL AND METHODS

85 patients aged between 25 to 65 years regularly attending ophthalmology OPD at NIMRA Institute of Medical Sciences, Jupudi, Vijayawada-Andhra Pradesh-521456 having the symptoms of dry eye syndrome, were studied

Inclusive criteria- The patients have symptoms of Itching or burning of eye, sandy or gritty sensation, redness, blurring of vision, Ocular fatigue, excessive blinking, were included in the study.

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Exclusion criteria – Patients of Diabetic mellitus, taking oral tetracycline or cortico – steroids, patients underwent LASIK (Laser in situ keratomileusis), patients having Cognitive or psychiatric disorders were excluded. Malignancy, immune compromised, hepatitis B and C were excluded from the study.

Method- Ocular surface Disease Index (OSDI)12 item questionnaire was used to assess the dry eye syndrome. The questionnaire has 3 sub scales: ocular symptoms, vision related function and environmental triggers. OSDI questionnaire was asked to every patient by a single examiner in their mother tongue (local language). The OSDI questionnaire has 12 items, with each question given a score ranging from 0 (none of the time) to 4 (all the time). The patients had to assign a score based on the duration of symptoms experienced over the preceding work. The final score was calculated by multiplying the sum of all scores by 25 and then dividing the total by the number of questions answered. Score range from 0 to 100 with 0-12 representing normal, 13-22 representing mild dry eye syndrome, 23-32 representing moderate Dry eye syndrome, and ≥ 33 represent severe Dry eye syndrome. Based on OSDI assessment the patients underwent Tear film break up time (TBUT) and schirmer test. The room temperature was maintained at 25°C -26.5°C with 60% to 65% humidity during examination. Tear break up time (TBUT) – fluorescein was applied to ocular surface the patient was asked to blink a few minutes before examination. Slit lamp bio-microscopy with a cobalt blue filter is used to investigate the tear film layer and the interval from the last blink to the appearance of the first random dry spot on the cornea was noted. The test was repeated thrice and the mean value was calculated, value of < 10 was considered as indicative of tear film instability[4]. Schirmer's test – whatmann filter paper no 41(Measuring 5mmX35mm) was placed in the lower fornix at the lateral one third of the lower lid margin. The extent of wetting of the strip was measured after 5 minutes. Less than 5.5mm of wetting was diagnostic value of severe dry eye5. Schirmer's test was done without anesthesia, to avoid the influence of conjunctival, corneal staining on the schirmer test. It was carried out at an interval of 10 minutes after TBUT test. Conjunctival impression cytology was performed with the eye anaesthetised with one drop of 4% xylocaine. Then the lacrimal lake inner canthus was dried with cotton tip applicator. A filter paper was grasped with blunt smooth edge forceps and applied to the inferior bulbar conjuctiva. The filter paper was gently pressed with glass rod held in the other hand. The paper strip was removed in a peeling fashion after 4-10 seconds and a specimen transferred to the lab for staining and fixation. The duration of study was from October 2015 to October 2019.

Statistical analysis- The clinical manifestation like various age group, grades of DES were classified with percentage Mean values of various test and significance of OSDI were noted. The statistical data was studied in SPSS 2017 software computer. The ratio of male and female was 2:1

OBSERVATION AND RESULTS

Table-1 – Clinical manifestation of patients with Dry eye syndrome –

a) The age group was-12(14.1%) between 25-35 years of age, 33(38.8) between 36-45 age group 14(16.4%) were between 46-45years age group 26(30.5%) were between the age group of 56-65

b) The grades of dry eye syndrome in patients was – 12(14%) were having mild, 48(56.4%) patients were moderate, 25(29.4%) had severe DES

Table-2 –The mean values of various test of DES- mean value of schirmers test was 13.52±3.72, TBUT test was 9.8± 1.90, CIC mean value was 2.60±1.17

Table-3- Associated diseases in DES with OSDI – Hypertension and tuberculosis patients had significant OSDI

The Age Group was - 12 (14.1%) between 25-35years
33 (38.8%) between 36-45years
14 (16.4%) between 46-55years
26 (30.5%) between 56-65years

Table 1: (No of patients 85)Clinical manifestations of patients with Dry eye syndrome

Sl No	Particular	No of patients	Percentage (%)
A	Age group		
	25-35	12	14.1
	36-45	33	38.8
	46-55	14	16.4
	56-65	26	3.5
B	Grades of Dry Eye syndrome		
	a-Mid	12	14.1
	b-Moderate	48	56.4
	c-Severe	25	29.4

Table 2: (No of patients 85)The mean values of schiremers test TBUT test and conjunctive impression cytology

Sl No	Particular	Mean value
1	Schirmers test	13.52±3.72,
2	TBUT test	9.8±1.90
3	CIC (Conjuctival impression cytology)	2.60±1.17

Table 3: (No of patients 85) Associated diseases of Dry eye syndrome

Sl No	Particular	No of patients	OSDI (with Dry Eye)
1	Hypertension	16	18(56.3) *
2	Glaucoma	14	02(28.6)
3	Tuberculosis	10	17(58.8) *
4	Cardiac diseases	07	01(40.0)
5	Arthritis	09	03(50.0)
6	Skin diseases	11	02(400)
7	Asthma	13	02(500)
8	Gastritis	5	01(33.3)

*(OSDI>55 is significant)

DISCUSSION

In the present study of DES in Vijayawada population- The clinical manifestation of age group 12(14.1%) between the age group of 25-35 years old. 33(38.8%) were aged between 36-55, 14(16.4%) were aged between 46-55, 26(30.5%) were aged between 56-65. The grade of DES was -12(14.1%) had grades mild, 48(56.4%) had moderate, 25(29.4%) had severe DES (Table-1). The mean values of various test of DES- mean value of schirmers test was 13.52±3.72, TBUT test was 9.8± 1.90 CIC mean value was 2.60±1.17 (Table-2). The significant OSDI was observed in Hypertension patients- 18 (56.3%), and 10 tuberculosis patients 17(58.8%). (Table-3). These findings were more or less in agreement with previous studies[5,6,7]. The prevalence DES varies from 0.4% to 34% in Indian population9. Globally it ranges from 18.4 to 54.3% [10]. This vast disparity in the prevalence of DES may be attributed to endemic geographic variations as well as the different diagnostic criteria by various studies. Moreover we relied on only symptoms to estimate the prevalence of DES rather than etiologies. In the present study 36 to 45 years old (adult) were more prone for DES rather than old age. In the present study males are more affected than females but few studies have reported that females are more affected than males[11]. The risk factors of DES were desk job with computer, low humidity indoor office environment and air –conditioned rooms negatively impact the tear film by causing desiccation of the eyes. Visual display terminate (VDT) where blinking rate of eyes was relatively very low leads to hampering the uniform distribution of tear film over the ocular surface 12. Since the main route of tear elimination is through evaporation, longer periods of eye opening and higher gaze angle when viewing computer, TV, mobile screen results faster tear loss, which further worsen the dry eye. Hence younger population or adults are more affected by DES. It is also reported that usage of contact lens, smoking also may cause or aggravate the DES[13]. Because it leads to discomfort, grittiness, irritation and burning sensation of eyes which are signs and symptoms of DES If DES is un-treated can lead to severe complications like epithelial defects, visual loss, superficial punctate Keratitis, filamentary keratatis, corneal erosions, ocular surface keratinization, corneal ulceration, corneal thinning and sterile corneal melting with possible perforation. Hence early detection is very important. Most of the patients are associated with hypertension, arthritis, tuberculosis, skin disease, cardiac disease, asthmas and DM etc.

SUMMARY AND CONCLUSION

The present study of DES is quite a challenge to ophthalmic surgeon for early diagnosis and to treat, As it has multiple signs and symptoms, many tests and technologies are necessary to diagnose. Early diagnosis is with utmost importance as un-treated DES may lead to fatal consequences like losing the eye. This study further demands patho-physiological, genetic, nutritional, environmental study because exact pathogenisis is of DES is still unclear.

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