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A Study of Clinical Evaluation And Etiological Analysis of Patients With Chronically Irritable Eyes Among Eye Opd Patients, Govt. Medical College & Mbs Hospital, Kota

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ABSTRACT

The study was conducted on 500 cases with presenting complaint of chronic ocular irritation. Patients have undergone detailed history, slit lamp biomicroscopy, tear break up time (TBUT) Schirmer's test and staining with fluorescein stain.

It was found that highest incidence of chronic irritation of eyes was seen in middle age groups of both men and women. Patients evaluated for geographical distribution showed that (62.2%) patients were of rural origin. In the present series the most common cause of chronic irritation of eyes was allergic conjunctivitis cases followed by dry eye. Blepharitis and Meibomitis were associated with dry eye. This is essential primarily to decrease the magnitude of problem in the form of health care cost, economic burden and to design efficient public health programme for awareness for proper eye hygiene, rapid referral, diagnosis and treatment and ultimately for the prevention of underlying disease.

KEYWORDS | TBUT, Schirmer's test, Blepharitis, Meibomitis.

Introduction:

Chronic irritation of eye is sandy-gritty feeling, burning, foreign body sensation or increased "awareness" of the eye, which is caused by a group of conditions and diseases, most often non-specific in nature.

Various causes are dry eye, meibomitis, blepharitis, chalazion, pterygium, allergic conjunctivitis, vernal keratoconjunctivitis, prolonged computer work etc.

Dry eye is the most common complaint of the patient presenting to ophthalmologist and is characterised by the ocular surface disease that results from any condition that decreases tear secretion or increase tear film evaporation.

Meibomitis refer to the inflammatory component of this disease and meibomian gland dysfunction to the lipid deficiency that develops as gland anatomy is altered by chronic inflammation. These patients have increased tear evaporation and high tear osmolality.

Blepharitis is the inflammation of eyelids. In anterior blepharitis, lid margins are frequently colonised by bacteria such as Staph. aureus, corynebacterium and propionibacterium.

Posterior blepharitis is characterised by obstructive and inflammatory meibomian gland dysfunction.

Seasonal allergic conjunctivitis is the most common form of allergic conjunctivitis. Vernal keratoconjunctivitis(VKC) is severe form of chronic allergic conjunctivitis. The disease is usually bilateral and common in males. It is a self limiting condition occuring usually in children and adolescent.

Pterygium is a triangular fibrovascular subepithelial ingrowth of bulbar conjunctival tissue over limbus on to cornea. The condition is more common in hot and sunny climate, in farmers and males.

The chalazion is a granuloma that develops around a sebaceous gland in the lids as a foreign body reaction to sebum released into the surrounding tissue.

Various tests for etiological analysis of chronically irritated eyes are tear film break up time (TBUT), Schirmer's test, diagnostic dye staining, meibomian gland evaluation is done by bio microscopic identification of the following pathological signs: pouting of orifices, distortion and plugging of orifices, toothpaste like secretion on pressure, lid margin irregularities and foam in tear meniscus, reduced expressibility of meibomian gland secretions and increased turbidity of expressed secretions.

AIMS AND OBJECTIVES

To find out various causes of chronically irritated eyes among patients attending eye OPD, Govt medical college and MBS Hospital, Kota.

To find out correlation between meibomitis and blepharitis with dry eye

MATERIAL AND METHODS:

This clinical study was carried out in the Department of Ophthalmology, Government medical college, Kota. A written consent was taken from all the subjects. We studied 500 cases of chronically irritated eyes after applying the exclusion criteria of our study.

Inclusion criteria

Dry Eye, Blepharitis, Meibomitis, Chalazion, Pterygium, Allergic Conjunctivitis, Vernal Keratoconjunctivitis, Phylectenular Keratoconjunctivitis, Patient On Prolonged Topical Drugs And Prolonged Computer Work.

Exclusion criteria

Infected eyes, Foreign body, Injury, Recent surgery, Entropion, Subconjunctival haemorrhage, Trichiasis, Glaucoma, Uveitis, Primary corneal pathology, Lacrimal sac condition, Uncooperative patient and Extremes of ages.

History

Character, location, diurnal variation, onset, duration, aggravating factors and alleviating factors.

Examination

Visual acuity, refraction and ocular movements of all the patients were recorded. All the patients were examined in slit lamp. A thorough examination of lids, conjunctiva and cornea was done.

Test for dry eye

Assessment of tear film stability

Invasive tear break up time (TBUT): A fluorescein strip, moistened slightly with balanced salt solution was touched lightly against the inferior tarsal conjunctiva and the patient was asked to blink several times to distribute the dye throughout the tear film. Ask patient to stare straight ahead without blinking while he or she observed the cornea through the slit lamp using broad tangential illumination with the cobalt blue filter. The time between a complete blink and the appearance of the first defect (black spot) in the fluorescein film was measured with the stopwatch.

Assessment of ocular surface damage

Fluorescein staining

- The epithelial defects were noted as area of bright green stain.

Rose Bengal staining

Dead and devitalized epithelial cells, keratinized cells and mucin were stained with rose Bengal.

Assessment of tear volume

Schirmer's test

Instill a drop of anaesthesia in both eyes, wait for 1 minute and instill a second drop. The filter paper (5 mm wide and 35 mm long standard no. 41 Whatman filter paper strip) was folded 5mm from one end and inserted at the junction of the middle and the outer third of the lower lid. The patient was asked to keep the eye closed and not to speak or move eye unnecessarily. After 5 minutes the filter paper was removed and the amount of wetting was measured.

Interpretation of results: At the end of 5 minutes.

A normal test - >10mm without topical anaesthesia (slightly less with anaesthesia)

Borderline dry eye – between 5- 10 mm

Pathological dry eye - < 5mm

Observations:

Among the chronically irritated eyes patients, attending the Out Patient Department of Ophthalmology, 500 patients with chronic irritation of eyes keeping exclusion criteria in mind were selected for the study.

TABLE: 1

AGE AND SEX DISTRIBUTION

S.NO.	AGE GROUP (Yrs.)	MALE	FEMALE	NO. OF PTS.(%)
1.	5 – 9	16	28	44 (8.8%)
2.	10 – 19	23	12	35 (7%)
3.	20 – 29	38	25	63 (12.6%)
4.	30 – 39	57	17	74 (14.8%)
5.	40 – 49	75	57	132 (26.4%)
6.	50 – 59	60	22	82 (16.4%)
7.	60 – 69	29	15	44 (8.8%)
8.	> 69	15	11	26(5.2%)
	TOTAL	313	187	500 (100%)

Table no. 1 shows that out of 500 patients, 313 were male and 187 were females. Highest number of patients affected with chronic irritations of eyes was in fourth decade. 30.4% of total females as compared to 23.9% of males were in fourth decade.

TABLE: 2

OCCUPATION OF PATIENTS WITH CHRONIC IRRITATION OF EYES

S.NO.	OCCUPATION	NO. OF PATIENTS	PERCENT
1.	AGRICULTURAL WORKERS	158	31.6%
2.	MANUAL LABOURERS	130	26%
3.	OFFICE WORKERS	53	10.6%
4.	STUDENTS	88	17.6%
5.	HOUSE WIVES	49	9.8%
6.	FACTORY WORKERS	22	4.4%
	TOTAL	500	100%

Of 500 patients 158 patients (31.6%) were employed as agricultural workers, usually field workers in field. This was followed by manual labourers 130 patients (26%).

TABLE: 3

ETIOLOGY OF 500 CASES OF CHRONIC IRRITATED EYE

S.No.	ETIOLOGY	NO. OF CASES	PERCENT
1.	DRY EYE	114	22.8%
2.	BLEPHARITIS	70	14%
3.	MEIBOMITIS	96	19.2%
4.	CHALAZION	8	1.6%
5.	PTERYGIUM	36	7.2%
6.	ALLERGIC CONJUNCTIVITIS	119	23.8%
7.	VKC	25	5%
8.	COMPUTER VISION SYNDROME	32	6.4%
	TOTAL	500	100%

Allergic conjunctivitis is the most common cause with 119 patients (23.8%) of chronic irritation of eyes, dry eye is the second most common cause with 114 (22.8%) cases.

TABLE: 4

RURAL AND URBAN DISTRIBUTUION OF ETIOLOGICAL FACTORS

S.No.	ETIOLOGY	RURAL NO.	%	URBAN NO.	%
1.	DRY EYE	85	17%	29	5.8%
2.	BLEPHARITIS	45	9%	25	5%
3.	MEIBOMITIS	76	15.2%	20	4%
4.	CHALAZION	3	0.6%	5	1%
5.	PTERYGIUM	28	5.6%	8	1.6%
6.	ALLERGIC CONJUNCTIVITIS	63	12.6%	56	11.2%
7.	VKC	11	2.2%	14	2.8%
8.	COMPUTER VISION SYNDROME	0	0%	32	6.4%
	TOTAL	311	62.2%	189	37.8%

Overall chronic irritation is more common in rural population 311 (62.2%) than urban population 189 (37.8%).

TABLE: 5

MALE AND FEMALE DISTRIBUTION OF VARIOUS CAUSES OF CHRONIC IRRITATION OF EYES

S.No.	ETIOLOGY	MALE		FEMALE	
		NO.	% OF TOTAL MALES	NO.	% OF TOTAL FEMALES
1.	DRY EYE	64	20.44%	50	26.73%
2.	BLEPHARITIS	43	13.73%	27	14.43%
3.	MEIBOMITIS	62	19.80%	34	18.18%
4.	CHALAZION	5	1.59%	3	1.60%
5.	PTERYGIUM	23	7.34%	13	6.95%
6.	ALLERGIC CONJUNCTIVITIS	78	24.92%	41	21.92%
7.	VKC	17	5.43%	8	4.27%
8.	COMPUTER VISION SYNDROME	21	6.70%	11	5.88%
	TOTAL	313	100%	187	100%

Above table no. 5 shows that 26.73% of total females as compared to 20.44% of total males presented with dry eye.

TABLE: 6

CORRELATION BETWEEN MEIBOMITIS AND BLEPHARITIS WITH DRY EYE

S.No.	ETIOLOGY	TOTAL CASES	CASES WITH DRY EYE	%
1.	BLEPHARITIS	70	38	54.28%
2.	MEIBOMITIS	96	29	30.20%

Dry eye was present more commonly with blepharitis (54.28%) followed by meibomitis (30.20%).

TABLE: 7
AGE AND SEX DISTRIBUTION IN PATIENTS WITH DRY EYE

S.No.	AGE GROUP (Yrs.)	MALE (%)	FEMALE (%)	TOTAL (%)
1.	5-9	-	1 (2%)	1 (0.8%)
2.	10-19	-	-	-
3.	20-29	5 (7.8%)	2 (4%)	7 (6%)
4.	30-39	10 (15.6%)	4 (8%)	14 (12.28%)
5.	40-49	20 (31.25%)	16 (32%)	36 (31.57%)
6.	50-59	14 (21.8%)	15 (30%)	29 (25.43%)
7.	60-69	7 (10.9%)	10 (20%)	17 (14.91%)
8.	>69	8 (12.5%)	2 (4%)	10 (8.77%)
	TOTAL	**64** (20.44% of total males of study grp.)	**50** (26.73% of total females of study grp.)	114 (100%)

Above table no. 7 shows that higher proportion of females (26.73% of total females) have dry eye as compared to males (20.44% of total males) with M:F = 0.76:1. Most common age group affected is 40-49 years 31.57%.

TABLE: 8
AGE AND SEX DISTRIBUTION IN PATIENTS OF BLEPHARITIS

S.No.	AGE GROUP (Yrs.)	MALE (%)	FEMALE (%)	TOTAL (%)
1.	5-9	6 (13.9%)	11 (40.7%)	17 (24.2%)
2.	10-19	10 (23.2%)	4 (14.8%)	14 (20%)
3.	20-29	15 (34.8%)	8 (29.6%)	23 (32.8%)
4.	30-39	6 (13.9%)	2 (7.4%)	8 (11.4%)
5.	40-49	3 (6.9%)	1 (3.7%)	4 (5.7%)
6.	50-59	2 (4.6%)	-	2 (2.8%)
7.	60-69	-	-	-
8.	>69	1 (2.3%)	1 (%)	2 (2.8%)
	TOTAL	**43** (13.73% of total males of study grp.)	**27** (14.43% of total females of study grp.)	70 (100)

This table no. 8 shows that almost equal proportion of males and females are affected.13.37% of total males and 14.43% of total females presented with blepharitis. Most common age group affect is 20-29 years (32.8%), followed by 5-9 years (24.2%), 10-19 years (20%), 30-39 years (11.4%), 40-49 years (5.7%), 50-59 years and >69 years (2.8%)

TABLE: 9
AGE AND SEX DISTRIBUTION IN PATIENTS OF MEIBOMITIS

S.No.	AGE GROUP (Yrs.)	MALE (%)	FEMALE (%)	TOTAL (%)
1.	5-9	1 (1.6%)	-	1 (1.04%)
2.	10-19	-	1 (2.9%)	1 (1.04%)
3.	20-29	2 (3.2%)	-	2 (2.08%)
4.	30-39	9 (14.5%)	6 (17.6%)	15 (15.6%)
5.	40-49	15 (24.1%)	14 (41.1%)	29 (30.2%)
6.	50-59	21 (33.8%)	1 (2.9%)	22 (22.91%)
7.	60-69	9 (14.5%)	8 (23.5%)	17 (17.70%)
8.	>69	5 (8%)	4 (11.7%)	9 (9.37%)
	TOTAL	**62** (19.8% of total males of study grp.)	**34** (18.2% of total females of study grp.)	96 (100%)

This table no.9 shows that almost equal proportion of males and females are affected. 19.8% of total males and 18.2% of total females presented with meibomitis. Most common age group affect is 40-49 years (30.2%) followed by 50-59 years (22%), 60-69 years (17.70%), 30-39 years (15.6%),> 69 years (9.37%), 20-29 years (2.08%), 10-19 years (1.04%) and 5-9 years (1.04%).

Table: 10
AGE AND SEX DISTRIBUTION IN PATIENTS OF PTERYGIUM

S.No.	AGE GROUP (Yrs.)	MALE (%)	FEMALE (%)	TOTAL (%)
1.	5-9	-	-	-
2.	10-19	-	-	-
3.	20-29	-	-	-
4.	30-39	6 (26%)	2 (15.3%)	8 (22.22%)
5.	40-49	10 (43.4%)	6 (46.15%)	16 (44.44%)
6.	50-59	4 (17.3%)	3 (23.07%)	7 (19.44%)
7.	60-69	3 (13.04%)	2 (15.38%)	5 (13.88%)
8.	>69	-	-	-
	TOTAL	23 (63.88%)	13 (36.11%)	36 (100%)

Above table no. 10 shows that more of the cases of pterygium were found in age group 40-49 years and it was more commonly seen in males 23 (63.88%) than females 13 (36.11%). However, it was found even in young persons, though rare.

Discussion:
Chronic irritation of eyes derives its importance because it can be caused by group of conditions and diseases, and is an extremely distressing situation both for patients and doctors. It may be the only symptom of severe disease e.g. dry eye, so detection of etiological factor is essential in early stage of the disease. Chronic irritation of eyes is most often non-specific in nature.

In our study of 500 (100%) cases, 26.73% of total females have dry eye as compared to 20.44% of total males. The male:female ratio being 0.76:1**(Table no.1)**. It was further observed that maximum patients were in age group of 30-69 years. This could be explained by the fact that some diseases which are causative factors for chronic irritative of eyes (e.g. dry eye) are more common in females particularly in the above mentioned age group.

Khurana et al (1991)[5] had reported that ratio of male to female patients with dry eye was 0.82. There was male predominance in 10-29 years age group in our study and this tendency can be explained partly because in this age group male computer working population is more and also the fact that males exceeds females in the total population.

Both sexes tend to develop chronic irritation of eye in the late decades of their life presumably there are more chances of developing tear film instability and inadequacy. **Mider B (1981)[9]** showed that the quantity of tear production is decreased with advancing age as indicated by decreasing Schirmer's values with advancing age. In our study the maximum number (56.8%) of cases were found in the age group 40-70 years. **Khurana et al (1991)[5]** had also reported that the maximum number (47%) of patients was in the age group 50-70 years.

In our study, according to **Table no. 2**, the most common occupational group affected was agriculture workers 158 (31.6%), followed by manual labourers 130 (26%). This is because these groups are exposed more to dry, sunny, hot and dusty environment. **Khurana AK et al[5]** also reported that the most common affected group was farmers (32%), followed by manual labourers (28%). Office workers are affected because of more time spent on computers, which leads to computer vision syndrome. While working at computer the blinking rate is decreased so there are more chances of dry eye.

In our present study, according to **Table no. 3**, allergic conjunctivitis is the most common cause with 119 patients (23.8%) of chronic irritation of eyes, dry eye is the second most common cause with 114 (22.8%) cases. According to **"Bonini et al (1987)"[1]** ocular allergy is estimated to affect

20% of the general population, which is comparable to the 23.8% of cases in our study.

In our study, **(Table no. 4)** there was predominance of number of cases from rural areas as compared to urban cases in ratio of 311 (62.2%) to 189 (37.8%). This could be explained on the grounds that there is-far more poverty, ignorance, illiteracy and poor hygiene in rural areas as compared to urban areas and also because of fact that around 69% of Indian population lives in rural areas while only 31% in urban areas.

In our study, according to **Table no. 5**, VKC was more common in males (17 cases) than females (8 cases). According to **Buckley RJ (1988)[2]** VKC affects males twice as often as females.

In our study, as in **Table no.6**, we found that blepharitis and meibomitis were associated with dry eye. **Mather WD (1993)[7]** also showed that the frequency of dry eyes to be as high as 56% in patients with blepharitis. Among 96 patients of meibomitis there were 29 (30.20%) cases diagnosed as having dry eye. **Mc Culley JP and Shine WE[8]** also reported that the frequency of dry eye in patients with meibomitis to be 25%.

In our study as in **Table no.7**, higher proportion of females (26.73% of total females) have dry eye as compared to males (20.44% of total males) with M:F = 0.76:1. Most common age group affected is 40-49 years (31.57%). Women are more likely to develop dry eyes due to hormonal changes caused by pregnancy, the use of oral contraceptives, and menopause.

In our study, according to **Table no. 8**, maximum percentage of pterygium patients were noticed in age group 40-49 years. This is in close age concordance with findings **Michele Gerundo[4]**. The prevalence of pterygium increases with age. **Mackenzie et al[6]** found that the risk of pterygium was increased in patiesnts who are in their third-fourth decade of life, work outdoor in an environment with high surface reflectance compare with those who work indoor .It was found from the observation that males are affected more i.e. 63.8% than females 36.1%. Higher incidence in males is due to more exposure to dust, wind, heat and sun while outdoor activities for their livelihood. Thus the chief factor in the etiology was exposure to atmospheric irritants leading to chronic irritation of the conjunctiva. **Parthasarthy& Gupta[10]** also concluded that males suffered more than females.

In our study, it was found that higher incidence of pterygium was in rural folk who are exposed of pterygium more to heat, dust, sun glare and atmospheric irritants. According to **Table no. 4,** out of 36 cases, 28 patients were of rural areas. This confirms the role of dry, dusty, hot climate in the incidence of pterygium. Farmers & labourers are constantly exposed to these conditions, this correlate with the findings of **Elliot[3] & Talbot[11]. Mackenzie et al** study on the risk factors in the development of pterygium suggest a strong causal relationship exposure to ultra violet light in the early years of life & a cumulative exposure over next 2 or 3 decades in occupation in development of pterygium.

SUMMARY AND CONCLUSIONS

In our study 500 cases of chronic irritation of eyes were selected from eye OPD of Government Medical College and MBS hospital, Kota. Detailed history and clinical examination was performed on all patients, with the slit lamp biomicroscopy.

It was found that highest incidence (26.4%) of chronic irritation of eyes was seen in middle age (40-49 years) groups of both men and women. No age was found to be immune for chronic irritation of eyes. Patients evaluated for geographical distribution showed that 311(62.2%) patients were of rural origin and 189 (37.8%) were of urban origin. In the present series the most common cause of chronic irritation of eyes was allergic conjunctivitis 119 (23.8%) cases followed by dry eye with 114 (22.8%) cases, followed by meibomitis 96 (19.2%), blepharitis 70 (14%), pterygium 36 (7.2%), prolonged computer work 32 (6.4%), vernal keratoconjunctivitis 25 (5%), and chalazion 8 (1.6%). In our study we found that the blepharitis and meibomitis were associated with dry eye. This is essential primarily to decrease the magnitude of problem in the form of health care cost, economic burden and to design efficient public health programme for awareness for proper eye hygiene, rapid referral, diagnosis and treatment and ultimately for the prevention of underlying disease.

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