

Hospital Based Descriptive Assessment of the Prevalence of Dry Eye in Post-Menopausal Women

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Conflict of interest: Nil

Abstract

Aim: To assess the prevalence of dry eye in postmenopausal females.

Material & Methods: This was a hospital based descriptive study where post-menopausal women were evaluated prospectively. The study was carried over the period of one year.

Results: A total of 380 cases were selected from the OPD of the hospital. 145 Women presented with dry eyes, hence prevalence was 38.2%. 27.5% cases were >70 years of age followed by 65-69 years (19%) and 60-64 years (15.5%).

Conclusion: Dry eye & its symptoms may be left unnoticed for years in post-menopausal women. Dry eye is a highly undiagnosed disorder in these women and therefore regular eye check-up of all such women should be done. Higher age group post-menopausal women are more susceptible to it.

Keywords: Dry eye, Menopause, Ocular, S test, Schirmer's test, Tear film

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Introduction

Dry eye is defined as a disorder of the tear film due to tear deficiency or excessive tear evaporation, which causes damage to the interpalpebral ocular surface and is associated with symptoms of ocular discomfort. [1] It is not a disease entity, but a symptom complex which occurs due to deficiency or abnormalities of tear film. [2] Dry eye disease (DED) is a disease of the tears and ocular surface and leads to symptoms of ocular discomfort, visual disturbance and tear film instability with potential damage to ocular surface. [3]

The tear film is formed by an outermost oily lipid layer, middle watery layer and inner mucous layer. The lipid layer is

secreted by Meibomian glands, lacrimal glands secrete watery layer and goblet cells of conjunctiva secrete mucous layer of tear film. The tear film secretion is regulated by hormonal and neuronal regulatory systems. [4]

The prevalence rate of DED ranging from 7% to 33%. [5-6] The prevalence is higher in Asian countries. Post-menopausal women are more commonly affected by dry eye disorders. In United States, about 3.23 million women are affected by dry eye disorders. [5] Sex hormone plays important role in maintenance of normal ocular surface integrity and Meibomian gland function. [7]

Further research is needed to better understand dry eye and its impact on public health and quality of life. There are new diagnostic techniques and potential treatment options, but there is a lack of information regarding the magnitude of the problem. "The existing estimates for the prevalence of dry eye does not reflect the current understanding," said Dr. Jones-Jordan. [8]

Thus, this study aims to assess the prevalence of dry eye in postmenopausal females.

Material & Methods:

This was a hospital based descriptive study where post-menopausal women were evaluated prospectively. The study was carried out over the period of one year. The study strictly adhered to the tenets of declaration of Helsinki

All women of post-menopausal age group having attained menopause for at least 1 year were included in the study. Patients with eyelid disorders, diabetes, thyroid eye disorders, rheumatoid arthritis and other auto-immune diseases affecting ocular

surface and contact lens wearers were excluded from the study. Patients undergoing any hormonal therapy were also excluded from the study.

Methodology

A detailed history taking including systemic diseases, menstrual history and ocular complaints was done, followed by detailed ocular examination including visual acuity, slit lamp examination and biomicroscopy. Ophthalmoscopy was performed for each eye. Dry eye was evaluated by Rose Bengal test, Schirmer's test and tear film break up time.

Statistical analysis

Data was compiled and demographic characteristics, presenting symptoms and signs. Statistical analyses were done by using SPSS version 19.0.

Results:

A total of 300 cases were selected from the OPD of the hospital. 145 Women presented with dry eyes, hence prevalence was 38.2%. [Table 1]

Table 1: Prevalence of dry eye

Women with dry eye	Total	Prevalence
145	380	38.2

Majority of patients had no dry eye (61.8%), while mild dry eye was seen in 19.5% of cases. Prevalence of moderate and severe dry eye was 13.5% and 7.1% respectively. [Table 2]

Table 2: Prevalence of various grades of dry eye

Dry eye staging	Number (N=380)	Prevalence
No dry eye	235	61.8
Mild dry eye	74	19.5
Moderate dry eye	44	11.6
Severe dry eye	27	7.1

Majority of patients presented burning of eye (57%) as a common symptom followed by redness (51%) and Grittiness (49%) respectively. [Table 3]

Table 3: Symptoms of dry eye

Symptoms	Never	Rarely	Sometimes	Often	All time
Dryness	69%	19%	11%	1%	0.5%
Grittiness	51%	25%	16%	7%	1%

Redness	49%	24%	15%	11%	1%
Burning	43%	26%	17%	8%	6%
Crusting	65%	20%	10%	5%	0.5%

27.5% cases were >70 years of age followed by 65-69 years (19%) and 60-64 years (15.5%). [Table 4]

Table 4: Age adjusted prevalence

Age group(years)	Number	Prevalence
<45	12	6%
45-49	16	8%
50-54	20	10%
55-59	28	14%
60-64	31	15.5
65-69	38	19%
>70	55	27.5

Discussion:

Study done by Aditi et al where the prevalence was found to be 37%. [9] The present study finding is also similar to a study by Adlakha et al where the prevalence of dry eyes among postmenopausal women was 38.2%. [10] The present study findings were different to a study done in Japan where the prevalence of dry eyes was very high 73.5%. [11] Very less prevalence (14.4%) of dry eye syndrome was reported in a study conducted by Moss et al. [12]

In Delhi it has been recorded 27%, in West Bengal 51.9% and in Karnataka it has been recorded 60%. [13-17] In our study 31 patients (46.97%) had mixed type, 23 patients (34.85%) had tear film instability and 12 patients (18.18%) had aqueous deficient dry eye. Farrell et al reported tear film deficient dry eye in 14.7% of cases and mixed dry eye in 70.6%. [18] Winter et al reported 21.6% cases of tear deficient dry eye and 45.3% cases of mixed dry eye. [19] Our findings support the above studies.

In a study conducted by Schaumberg et al where significant odds ratio was found between socio economic status and dry eye disease. [20]

The mean corneal thickness value was significantly decreased in postmenopausal women with dry eye ($P < 0.001$ at each corneal location). The central cornea had the thinnest mean values in dry eyes and normal eyes ($533.10 \pm 4.74 \mu\text{m}$ and $547.63 \pm 15.11 \mu\text{m}$, respectively), whereas superonasal cornea had thicker mean values in both groups ($632.43 \pm 6.11 \mu\text{m}$ and $648.78 \pm 14.98 \mu\text{m}$ in dry eye and normal eyes, respectively). [21]

In another dry eye epidemiology study, 13,517 subjects attending optometry clinics in Canada, aged 10-80yrs. Cross-sectional (clinic based) study was conducted. Prevalence was noted to be 28.7%. [22]

In Melbourne visual impairment project: 926 subjects in Australia, 40-97 years old, cross-sectional study, prevalence was recorded to be 7.4%. [23] In another study on 3703 subjects from Beaver Dam, prevalence of dry eye was found to be 14.4% in a population-based study. [24,25]

Conclusion:

Dry eye & its symptoms may be left unnoticed for years in post-menopausal women. Dry eye is a highly undiagnosed disorder in these women and therefore regular eye check-up of all such women should be done. Higher age group post-

menopausal women are more susceptible to it. By early diagnosis and treatment of dry eye disease (DED) in postmenopausal women quality of life can be improved and severe dry eye related blindness can be reduced. Hence, ophthalmic evaluation for dry eye should be an integral part of the examination of postmenopausal women.

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