

## **PATTERN OF DRY EYE IN POSTMENOPAUSAL WOMEN IN A TERTIARY CARE HOSPITAL IN JAMMU REGION**

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### **ABSTRACT**

**Background:** *Dry eye is one of the most important causes of ocular morbidity. Postmenopausal women often present with dry eye symptoms. The purpose of this study is to assess the pattern of dry eye in post menopausal women attending ophthalmology OPD in GMCJammu.*

**Material and methods:** *A cross-sectional study was conducted on 200 patients attending ophthalmology OPD in GMCJammu from June 2018 to December 2018. After the detailed history, patients were subjected to complete ophthalmic examination, dry eye tests for example schirmer's test and tear film breakup time were done, for the assessment of dry eye.*

**Results:** *Out of the 200 patients, most commonly dry eye was seen in the age group 61 to 65 years and mostly in patients engaged in outdoor occupation.*

**Conclusion:** *If the symptoms are detected early, patients can be benefitted. The optimal care includes early detection and adequate use of lubricants in these patients.*

**Keywords:** *dry eye, Postmeopause, shirmer's test, tear film breakup time*

### **INTRODUCTION**

Dry eye is the most frequent disorder in ophthalmology practice. The dry eye per se is not a disease entity, but a symptom complex occurring as a sequelae to deficiency or abnormalities of the tear film. It is defined as a disorder of the tear film due to tear deficiency or excessive tear evaporation, which causes damage to the inter-palpebral ocular surface and is associated with symptoms of ocular discomfort.<sup>1</sup>

Menopause is defined as a permanent, menstrual cessation of the physiological cycle. It plays an important role in the development of eye surface dryness symptoms due to modulation of hormones in the body.<sup>2</sup> Dry eye is often described as multifactorial eye surface disease diagnosed with symptoms of discomfort and signs of visual disturbance, tear film instability and eye surface damage. It is also often associated with increased tear film osmolarity and inflammation of the eye surface.<sup>3</sup>

Its prevalence is common among post-menopausal women. According to one study eye is a locus of action of female sexual hormones. Another study proposed the reduction of naturally occurring estrogen as a possible reason for the occurrence of dry eye in post-menopausal women.<sup>4</sup> In the development of the dry eye, menopause can play an important role. The effect of hormones on the incidence and course of the dry eye has been noted, in particular in postmenopausal women (PMW). The meibomian gland is an androgen target organ that affects the function of the meibomian gland.<sup>5</sup> Androgens are known to regulate the development, differentiation, and lipid production of sebaceous glands throughout the body.

They primarily act on acinar epithelial cells in sebaceous glands, and these cells contain both androgen receptor messenger RNA.<sup>6</sup> The present study assessed pattern of dry eye in postmenopausal women in a tertiary care hospital in Jammu region.

## MATERIALS & METHODS

The present study was conducted among 200 post- menopausal women. They were enrolled with their written consent. Ethical clearance was obtained from institutional ethical committee. Patients with eyelid disorders, thyroid eye disorders, rheumatoid arthritis, diabetes and other auto-immune diseases affecting ocular surface and contact lens wearers were excluded.

A detailed history in terms of ocular and systemic history was recorded. A thorough eye examination involving visual acuity and slit lamp examination were performed. All were subjected to Schirmer's test and tear film break up time. To conduct a Schirmer's test, a piece of filter paper, (no.41 whartman) was inserted at the junction of middle and outer third of the lower eyelid of both eyes and the patients were advised to gently close their eyes. After 5 minutes, the filter paper was removed. A positive test occurred when less than 10 mm of the strip was wet after 5 minutes without anaesthesia and less than 6 mm with anaesthesia. Tear breakup time (TBUT) was determined by measuring the interval between instillation of fluorescein 2 percent and appearance of the first dry spots on the cornea under broad beam and a cobalt blue filter. A fluorescein strip is moistened with saline and applied to the inferior cul-de-sac. Time less than 10 seconds is thought to be positive.<sup>15</sup> Patients were advised treatment for dry eye accordingly and followed for 2 months. Results of the present study were assessed statistically. P value less than 0.05 was considered significant.

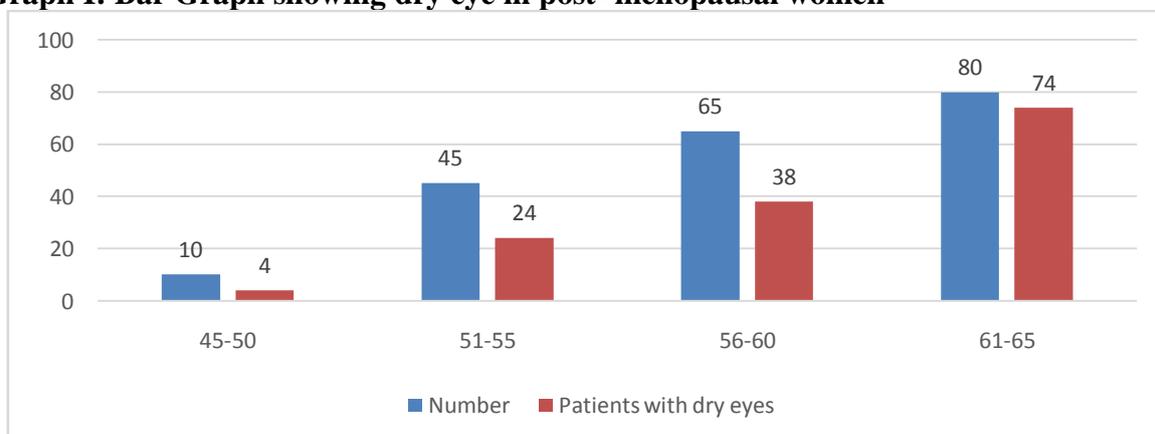
## RESULTS

**Table I Distribution of dry eye in post- menopausal women**

Age group (years)	Number	Patients with dry eyes	Percentage
45-50	10	4	40%
51-55	45	24	53.3%
56-60	65	38	68.5%
61-65	80	74	92.5%

Table I, graph I shows that a total of 200 patients were taken in the study. Out of them, 140 had dry eye disease. Majority of the post- menopausal women belonged to the age group 61-65 years (92.5%) and 56-60 years (68.5%).

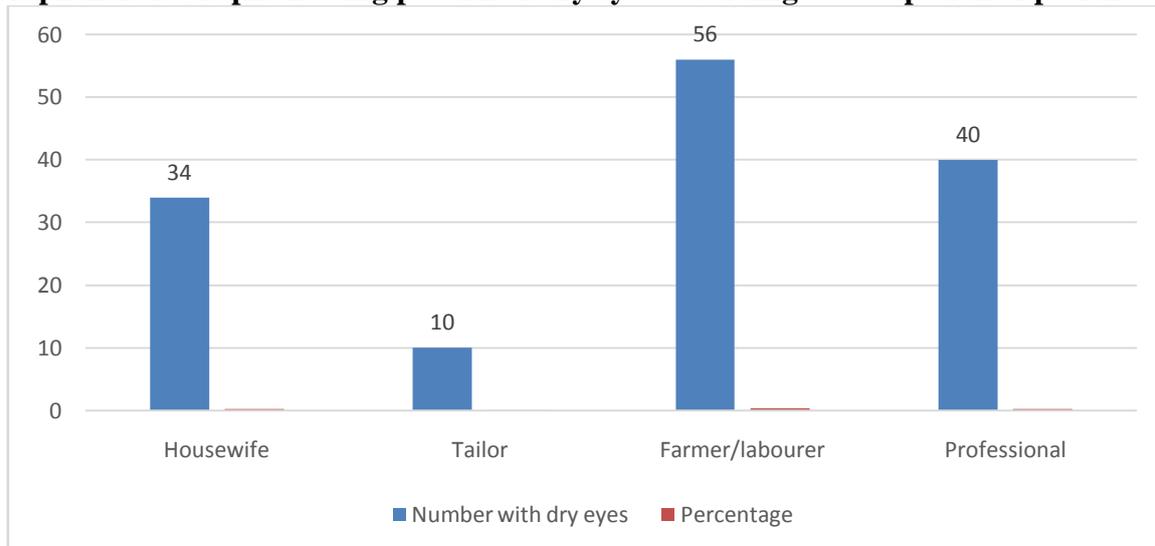
**Graph I: Bar Graph showing dry eye in post- menopausal women**



**Table II Pattern of dry eyes according to occupation of patients**

Occupation	Number with dry eyes	Percentage
Housewife	34	24.3%
Tailor	10	7.1%
Farmer/labourer	56	40%
Professional	40	28.6%

As shown in table II, graph II, dry eyes symptoms were more common in farmer/labourer (40%) and professional (28.6%).

**Graph II Bar Graph showing pattern of dry eyes according to occupation of patients****Table III Distribution of dry eye according to severity of dry eye**

Severity	No. of dry eye patients	Percentage	P value
Mild	34	24.3%	0.02
Moderate	82	58.6%	
Severe	14	10%	
Associated with complications	10	7.1%	

Table III shows that severity was mild in 34, moderate in 82, severe in 14 and associated with complications in 10 cases. The difference was significant ( $P < 0.05$ ).

**Table IV Dry eye distribution according to laterality of eye**

Age group (years)	Number	B/L	U/L
45-50	4	2	2
51-55	24	20	4
56-60	38	28	10
61-65	74	66	8

Table IV shows that maximum dry eyes patients with B/L was seen in 66 and U/L in 8 in age group 61-65 years.

## DISCUSSION

Abnormality in preocular tear film causes dry eye. The preocular tear film, classically, is a three-layered structure consisting, from posterior to anterior, of the mucous, the aqueous and the lipid layers.<sup>7,8</sup> The National Eye Institute/Industry Workshop on Clinical Trials in Dry Eyes defined dry eye as “a disorder of the tear film due to tear deficiency or excessive tear evaporation, which causes damage to the inter-palpebral ocular surface and is associated with symptoms of ocular discomfort”.<sup>9,10</sup> Dry eye is the most frequent disorder in ophthalmology practice.<sup>11</sup> The present study assessed pattern of dry eye in postmenopausal women in a tertiary care hospital in Jammu region.

In present study, a total of 200 patients were taken in the study. Out of them, 140 had dry eye disease. Majority of the post-menopausal women belonged to the age group 61-65 years (92.5%) and 56-60 years (68.5%). Sahai et al<sup>12</sup> in their study ninety-two (18.4%) patients had dry eye. Dry eye prevalence was maximum in those above 70 years of age (36.1%) followed by the age group 31-40 years (20%). It was significantly higher ( $P = 0.024$ ) in females (22.8%) than in males (14.9%), more common in rural residents (19.6%) than in urban (17.5%) and highest among farmers/labourers (25.3%). A 2.15 fold increase was found in the odds for dry eye in those exposed to excessive wind, 1.91 fold to sunlight exposure, 1.42 to smoking, 1.38 to air pollution and 2.04 for persons on drugs. Dry eye prevalence was 14% in emmetropes, 16.8% in myopes and 22.9% in hypermetropes. It was 15.6% in those with corrected and 25.3% in those with uncorrected refractive errors.

We found that dry eyes symptoms were more common in farmer/labourer (40%) and professional (28.6%). Jeena et al<sup>13</sup> in their study found that majority (66%) of postmenopausal women had dry eye. Among them, from the OSDI scoring system, 26% had moderate dry eye, 19% had severe dry eye and 21% had mild dry eye. The mean age of symptomatic patient was 59.92 years. Majority of patients residing in the urban sector had a dry eye (65%) thus addressing the fact that exposure to environmental stresses like pollution, dust, and smoke as attributable risk factors. 72.7% of the patients with dry eye had tear meniscus height  $>1$  mm. This study showed tear meniscus assessment to be a useful alternative to existing tests for dry eye.

We observed that severity was mild in 34, moderate in 82, severe in 14 and associated with complications in 10 cases. We found that maximum dry eyes patients with B/L was seen in 66 and U/L in 8 in age group 61-65 years. Agarwal et al<sup>14</sup> carried a cross-sectional study on 300 post-menopausal women for diagnoses of dry eye based on schirmer's test Grading of dry eye was done according to drew's classification. 96 of the 300 post-menopausal women visiting our hospital, who were included in our study, were found to have dry eyes that is 32% prevalence. Age adjusted prevalence was more for older women. Symptoms of dry eye commonly seen in these women were of dryness, crusting, redness, grittiness & burning. Of the 32 % women having dry eyes, 21% had mild, 8% moderate and 3% severe dry eyes. Interpretation: 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.

## CONCLUSION

Authors found that if the symptoms of dry eyes are detected early, patients can be benefitted. The optimal care includes early detection and adequate use of lubricants in these patients.

## REFERENCES

1. Lemp MA, Chacko B. Diagnosis and treatment of tear deficiencies. In: Tasman W, Jaeger E, editors. Duane's Clinical Ophthalmology. Philadelphia: Harper and Row; 1997.

2. Moss SE, Klein R, Klein BE. Prevalence of and risk factors for dry eye syndrome. *Arch Ophthalmol*. 2000;118:1264–1268.
3. Schaumberg D A, Dana R, Buring J E, and Sullivan D A. Prevalence of dry eye disease among US Men: Estimates from the Physicians' Health Studies. *Arch Ophthalmol*. 2009 Jun;127(6):763–768.
4. Lin P, Tsai S Y, Cheng C Y, Liu J H, Chou P, Hsu W M. Association between symptoms and signs of dry eye among an elderly Chinese Population in Taiwan: The Shihpai Eye Study. *Investigative Ophthalmology & Visual Science* May 2005, Vol.46, 1593-1598.
5. Schaumberg D A, Buring J E, Sullivan D A, Dana M R. Hormone replacement therapy and dry eye syndrome. *JAMA*. 2001;286(17):2114-2119.
6. Juan S G, Antonio L P, Luis A, Rahhal, Francisco M S. Reduced corneal thickness values in postmenopausal women with Dry Eye. *Cornea*. January 2005;39-44.
7. Caffery BE et al. The Canadian dry eye epidemiology study. *Adv Exp Med Biol*. 1998;438:805-6.
8. McCarty CA, Bansal AK, Livingston PM, Stanislavsky YL, Taylor HR. The epidemiology of dry eye in Melbourne, Australia. *Ophthalmology*. 1998;105:1114– 1119.
9. Moss SE, Klein R, Klein BE. Incidence of dry eye in an older population. *Arch Ophthalmol*. 2004 Mar;122(3):369-7.
10. Coles N, Lubkin V, Kramer P, Weinstein B, Southern L, et al. Hormonal analysis of tears, saliva, and serum from normal and postmenopausal dry eyes. *Invest Ophthalmol Vis Sci* 1988;29: 48–52.
11. Sullivan DA, Edwards JA, Wickham LA. Identification and endocrine control of sex steroid binding sites in the lacrimal gland. *Curr Eye Res* 1996;15: 279-329.
12. Sahai A, Malik P. Dry eye: prevalence and attributable risk factors in a hospital-based population. *Indian journal of ophthalmology*. 2005 Apr 1;53(2):87-91.
13. Gurung Jeena, Piya Saurav, Khatri Anadi. Prevalence of Dry Eye in Postmenopausal Women: A Study from Nepal. *Ophthalmology Journal* 2019;1-5.
14. Rahul Agarwal, Priti Singh, Tanya Rajpal, Rashmi Kumar, Sapna Raghuwanshi, Vinita Ramnani. Hospital based study of prevalence of dry eye in post-menopausal women. *Indian Journal of Clinical and Experimental Ophthalmology*, January-March,2016;2(1): 57-62.
15. Kanski Jack John F. Salmon. *Kanski's Clinical Ophthalmology*. Elsevier- 9<sup>th</sup> Ed.