

COMPARISON OF DRY EYES IN POST- MENOPAUSAL WOMEN WITH AND WITHOUT SYMPTOMS OF DRY EYESMohana Majumdar¹, Rekha Khandelwal², Tanya Gangwani³**HOW TO CITE THIS ARTICLE:**

Mohana Majumdar, Rekha Khandelwal, Tanya Gangwani. "Comparison of Dry Eyes in Post-Menopausal Women with and without Symptoms of Dry Eyes". Journal of Evolution of Medical and Dental Sciences 2014; Vol. 3, Issue 57, October 30; Page: 12933-12938, DOI: 10.14260/jemds/2014/3716

ABSTRACT: PURPOSE: This study was done to evaluate the relationship between menopause and dry eyes, to assess the severity of dry eyes in symptomatic post-menopausal women and to validate Ocular Surface Disease Index. **MATERIALS AND METHODS:** In our study, cross sectional group comprised of 293 postmenopausal patients attending the postmenopausal clinic in Gynecology Out Patient Department and fulfilling our selection criteria. After noting the detailed history and demography, the Allergan Ocular Surface Disease Index (OSDI) score was done. Visual acuity was assessed on Snellen's chart and anterior segment evaluation was done with slit lamp biomicroscope. Dry eye evaluation was done with Schirmer and Tear film Break-Up Time (tBUT) tests. **RESULTS:** The important ocular findings in postmenopausal women were foreign-body sensation and grittiness, hyperaemia, mucoid discharge and fluctuating or blurry vision. The overall prevalence of dry eye in symptomatic post-menopausal women was 82.97% which was statistically significant. (p<0.00) **CONCLUSION:** Results from the present study reveal that dry eye symptoms are common problems in postmenopausal women. The prevalence of dry eye in post-menopausal women with symptoms has significant association. Hence, examination for dry eye should be an integral part of the postmenopausal women especially those having dry eye symptoms.

KEYWORDS: Dry eye, post-menopause, tear break-up time.

INTRODUCTION: Dry eye syndrome (DES), also known as Kerato Conjunctivitis Sicca (KCS) is a varied group of conditions of the tears and the ocular surface of the eye that results in discomfort, visual disturbance, and tear film instability with potential damage to the ocular surface.¹ The most common complains associated with dry eye syndrome (DES) is foreign-body sensation and grittiness, hyperemia, mucoid discharge and fluctuating or blurry vision. Dry eye is caused due to aqueous tear deficiency and evaporative tear dysfunction.

Aqueous tear deficiency can be due to Non- Sjogren syndrome and Sjogren syndrome.² Of the few large epidemiologic studies to date, many have reported a higher prevalence of DES in older persons.³⁻⁵ Documented risk factors of dry eye are age, post-menopausal women, arthritis, caffeine use, thyroid disease, gout, total to high density lipoprotein cholesterol ratio, diabetes, and multivitamin use.⁶ Several studies have been done to establish the relation between menopause and dry eye and the use of Hormone Replacement Therapy as a treatment of dry eyes.⁷⁻⁹

Despite the gain in knowledge of pathogenic factors of dry eye disease acquired in the past 30 years, there has been a lack of consensus on the aim of specific diagnostic tests, the role of subjective symptoms, and the interpretation of results. The Ocular Surface Disease Index (OSDI) is an instrument available to evaluate symptoms of dry eye. There have been few studies which have supported the role of OSDI for the diagnosis of dry eye syndrome.^{10,11}

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There is no doubt that dry eye is an important and serious disease of the ocular surface, which can severely affect the patient's quality of life.

METHODS: In our study 293 postmenopausal patients attending the postmenopausal clinic in Gynecology Out Patient Department were selected. Patients with lid disorders, any other ocular surface disorder, diabetes, rheumatoid arthritis, thyroid disease, gout and any gynecology disease were excluded. Contact lens wearers previously diagnosed dry eye patients and patients on any medications were also not included. After noting the demography, the Allergan OSDI score was done. Visual acuity was assessed on Snellen's chart and anterior segment evaluation was done with slit lamp biomicroscope.

Dry eye evaluation was done with Schirmer and Tear film Break-Up Time tests. Schirmer test which is a useful assessment of aqueous tear production, and is performed by placing a special filter paper (Whatmann Filter paper No.:41) in the lower fornix, was done. Aqueous tear production less than 5 millimeters in 5 minutes was noted. Tear film Break-Up Time was done by an impregnated fluorescein strip moistened with non-preserved saline instilled into the lower fornix. The tBUT of less than 10 seconds was noted. Informed consent was obtained from all patients and the research had the approval of the institutional ethics committee.

RESULTS: This study included 293 post-menopausal women out of which 127(43.34 %) were positive for dry eye. (Table -1)

No. of patients	No. of dry eyes (%)
293	127 (43.34%)

Table 1: Dry eye prevalence in post-menopause

Dry eye prevalence in age group >64 years was maximum. (Table-2)

Age (Years)	No. of patients (%)	No. of dry eye
45-49	11	2 (18.18%)
50-54	32	9 (28.12%)
55-59	125	48 (38.4%)
60-64	109	57 (52.29%)
>64	16	11 (68.75)
Total	293 (100%)	127 (43.34%)

Table 2: Age and dry eye in post-menopause

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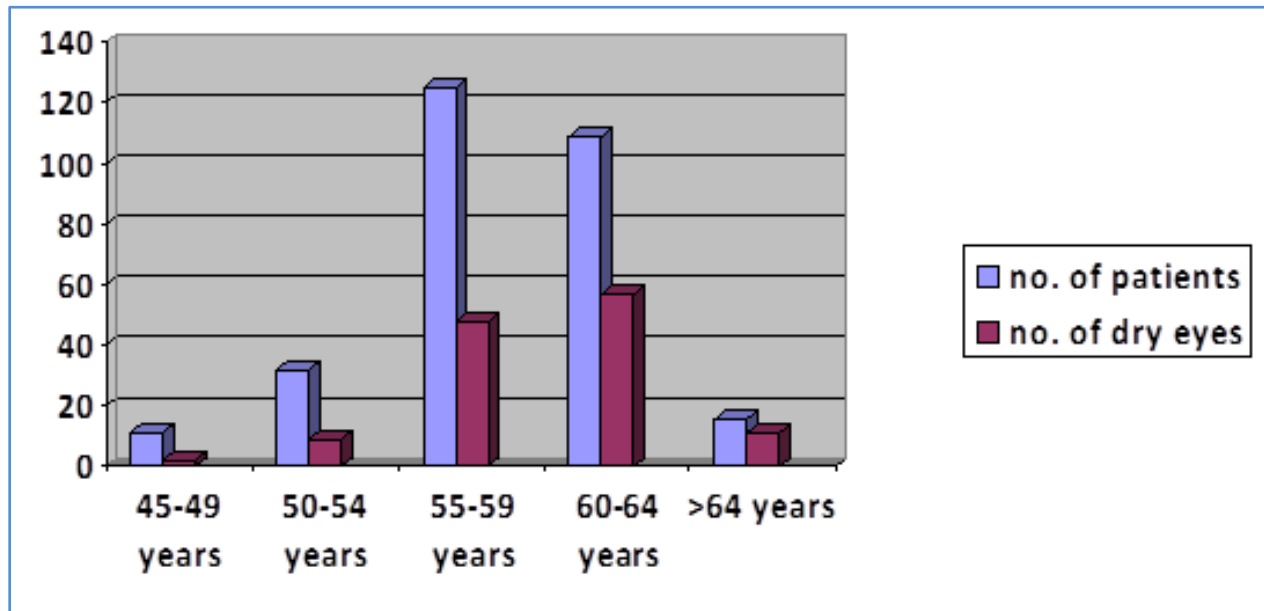


Figure 1: Age distribution of dry eyes

Of 293 patients, 24.62% (49 of 199) was the dry eye prevalence in patients without symptoms while, 82.97% (78 of 94) was in patients with symptoms as shown in table-3(p value <0.00).

Symptoms	With symptoms	Without symptoms
No. of patients (293)	94	199
No. of dry eye (127)	78	49
% age of dry eye	82.97%	24.62%

Table 3: Dry eye and symptoms in post-menopause

DISCUSSION: Dry eye disease frequently causes ocular irritation. With symptoms overlapping with other diseases, it is often an undetected condition causing prolonged morbidity. There are different reports on the prevalence of DES.^{4,12,13} The factors promoting DES include systemic autoimmune disease, hormonal changes, neurologic lesions, age-related changes, and iatrogenic and workplace-related causes such as LASIK surgery and video display terminal use.^{14,15}

Generally, the prevalence of DES is known to increase with age.⁴ There are various hypotheses to support this, one important hypothesis being age-related decrease in meibomian gland secretion possibly due to atrophy of acinar cells, similar to age-related decline in the function of other sebaceous glands. Also aging is associated with alterations in the quality of meibomian gland secretions. The lacrimal gland also appears to undergo a number of age-related changes.¹⁶ Several

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data in literature suggest a major influence of gender and sex hormones on the physiology of the lacrimal gland and that they are involved in the pathogenesis of DES.

It also occurs mainly in women and its appearance is frequently related to marked variations in serum sex hormone levels like menopause.¹⁷ The data from a study done by Caterina Gagliano, et al suggest that deficiency in sexual hormones may cause not only a reduction in tear production leading to aqueous-deficient dry eye, but also a dysfunction in meibomian gland function determining an evaporative dry eye.¹⁸

In our study too, we obtained a co-relation between the presence of DES and post-menopausal women.

Thus, as in Beaver Dam Offspring Study prevalence of dry eye symptoms increased with age in women.¹⁹ The drawback in our study is the lack of tests for hormonal levels which would prove the association of dry eye in elderly women. Also newer techniques like biomarkers of dry eye disease, image analysis software to evaluate tear smoothness and stability noninvasively, would provide better analysis. Studies using these non- invasive devices have found more rapid and extensive ring distortion (break-up) in tear dysfunction that correlates with severity of corneal epithelial disease.²⁰

CONCLUSION: The prevalence of dry eye in post-menopause was 43.34%. Dry eye prevalence has significant association with elderly women with symptoms of dry eye. Hence, examination for dry eye should be an integral part of the assessment of post-menopausal women, especially those who are symptomatic.

REFERENCES:

1. The definition and classification of dry eye disease: report of the Definition and Classification Subcommittee of the International Dry Eye Work Shop (2007). *Ocul Surf.* Apr 2007; 5 (2): 75-92.
2. Academy of Ophthalmology Basic and Clinical Science Course. External disease and cornea: section 8: 72.
3. McCarty CA, Bansal AK, Livingston PM, Stanislavsky YL, Taylor HR. The epidemiology of dry eye in Melbourne, Australia. *Ophthalmology.* 1998; 105: 1114-1119.
4. Moss SE, Klein R, Klein BE. Prevalence of and risk factors for dry eye syndrome. *Arch Ophthalmol.* 2000; 118: 1264-1268.
5. Schaumberg DA, Sullivan DA, Buring JE, Dana MR. Prevalence of dry eye syndrome among US women. *Am J Ophthalmol.* 2003 Aug; 136 (2): 318-26.
6. Versura P, Campos EC. Menopause and dry eye. A possible relationship. *Gynecol Endocrinol.* 2005 May; 20 (5): 289-98.
7. Piwkumsribonruang N, Somboonporn W, Luanratanakorn P, Kaewrudee S, Tharnprisan P, Soontrapa S. Effectiveness of hormone therapy for treating dry eye syndrome in postmenopausal women: a randomized trial. *J Med Assoc Thai.* 2010 Jun; 93 (6): 647-52.
8. Coksuer H, Ozcura F, Oghan F, Haliloglu B, Coksuer C. Effects of estradiol-drospirenone on ocular and nasal functions in postmenopausal women. *Climacteric.* 2011 Aug; 14 (4): 482-7. doi: 10.3109/13697137.2010.539724. Epub 2011 Feb 1.

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9. Scuderi G, Contestabile MT, Gagliano C, Iacovello D, Scuderi L, Avitabile T. Effects of phytoestrogen supplementation in postmenopausal women with dry eye syndrome: a randomized clinical trial. *Can J Ophthalmol*. 2012 Dec; 47(6):489-92. doi: 10.1016/j.jcjo.2012.08.019.
10. Ozcura F, Aydin S, Helvaci MR. Ocular surface disease index for the diagnosis of dry eye syndrome. *Ocul Immunol Inflamm*. 2007 Sep-Oct; 15 (5): 389-93.
11. Schiffman RM, Christianson MD, Jacobsen G, Hirsch JD, Reis BL. Reliability and validity of the Ocular Surface Disease Index. *Arch Ophthalmol*. 2000 May; 118 (5): 615-21.
12. Lin PY, Tsai SY, Cheng CY, Liu JH, Chou P, Hsu WM. Prevalence of dry eye among an elderly Chinese population in Taiwan: the Shihpai Eye Study. *Ophthalmology*. 2003; 110: 1096–1101.
13. Schein OD, Munoz B, Tielsch JM, Bandeen-Roche K, West S. Prevalence of dry eye among them. *Am J Ophthalmol*. 1997; 124: 723–728.
14. Lemp MA. Keratoconjunctivitis sicca (introduction in the cornea). in: C.S. Foster, D.T. Azar, C.H. Dohlman (Eds.) *Scientific foundations and clinical practice*. Lippincott Williams and Wilkins, Philadelphia; 2005: 573–576.
15. Michael A. Lemp. Dry Eye (Keratoconjunctivitis Sicca), Rheumatoid Arthritis, and Sjögren's Syndrome. *Am J Ophthalmol*. Volume 140, Issue 5, Pages 898–899, November 2005.
16. Debra A Schaumberg, David A Sullivan, Julie E Buring et al. Prevalence of dry eye syndrome among US women. *Am J Ophthalmol*. Volume 136, Issue 2, Pages 318–326, August 2003.
17. Shimazaki J, Sakata M, Tsubota K. Ocular surface changes and discomfort in patients with meibomian gland dysfunction. *Arch Ophthalmol* 1995; 113: 1266–70.
18. Caterina Gagliano, Salvatore Caruso, Giuseppe Napolitano, Giulia Malaguarnera. Low levels of 17- β -oestradiol, oestrone and testosterone correlate with severe evaporative dysfunctional tear syndrome in postmenopausal women: a case-control study. *Br J Ophthalmol* 2014; 98: 371-376 doi: 10.1136/bjophthalmol-2012-302705.
19. Adam J, Paulsen J Cruickshanks, Mary E Fischer, Guan-Hua Huang, Barbara EK, Klein Ronald, Klein Dayna, S Dalton. Dry Eye in the Beaver Dam Offspring Study: Prevalence, Risk Factors, and Health-Related Quality of Life. *Am J Ophthalmol*. Volume 157, Issue 4, Pages 799–806, April 2014.
20. Gary N Foulks, Stephen C Pflugfelder. New Testing Options for Diagnosing and Grading Dry Eye Disease. *Am J Ophthalmol*. Volume 157, Issue 6, Pages 1122–1129, June 2014.

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Date of Submission: 14/10/2014.
Date of Peer Review: 15/10/2014.
Date of Acceptance: 25/10/2014.
Date of Publishing: 28/10/2014.