

Comparative study of occurrence of dry eye in post menopausal women

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Abstract

Aims and Objectives: To know whether the occurrence of dry eye is more in postmenopausal women than menstruating women. To study the prevalence of dry eye in postmenopausal women.

Keywords: Dry eyes, postmenopausal women, menopause.

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Decrease in androgen levels excites inflammation in lacrimal gland and ocular surface disrupting normal homeostatis maintenance of the lacrimal gland and ocular surface.⁵ It has been recognised that hormones have an impact on the incidence and course of dry eye syndrome, especially in the post menopausal women.⁶ Thus this study is being conducted to find whether as association between dry eye diseases and menopause really exists.

Classification of dry eyes

1. Aqueous deficient
2. Tear film instability
3. Mixed

INTRODUCTION

“Tears are important to eyes”, is to state the obvious. However to better appreciate the importance of the tear film one only has to see the consequences of a compromised tear film. Dry eye is a multifactorial disease of the tears and ocular surface that results in the symptoms of discomfort, visual disturbances and tear film instability with potential damage to the ocular surface.¹ Dry eye occurs when there is inadequate tear volume or function resulting in an unstable tear film and ocular surface disease. Dry Eye syndrome is associated with an enhanced risk of corneal infection and can further cause permanent visual impairment.² Hormonal status plays a role in ocular surface homeostatis and function which is accomplished by estrogenic and androgenic receptors located on corneal and conjunctival epithelia and Meibomian gland.³ Menopause which is defined as, the permanent physiological or natural cessation of the menses, is associated with a group of disorders classified under the head of “post menopausal syndrome”.⁴

MATERIALS AND METHODS

This is a type of case-control study. This study was carried out in the Department of Ophthalmology, MGM Medical College, Aurangabad. The duration of study was from September 2008 to September 2010. The study had 2 groups; the cases and the control; with 50 patients in each.

Inclusion and Exclusion criterias

Cases in postmenopausal age group having attained menopause for at least 1 year were included in the CASE group while those in the menstruating age group were taken as CONTROL. Patients having any other ocular conditions which may cause tear film irregularities were excluded from the study. Patients having undergone surgeries like LASIK, keratoplasties, glaucoma filtration surgeries were excluded from the study. Subjects using contact lenses were excluded from the study. Subjects undergoing any hormonal treatment or pregnancy were

also excluded from the study. Tear secretion was tested by FTBUT test, Rose Bengal test and Schirmer’s test.

Tests for Tear secretion:

- a. **FTBUT (FLUOROSCEIN TEAR BREAK UP TIME)** performed by inserting the fluorescein strip in the conjunctival sac, then under cobalt blue filter patient was examined on a slit lamp and was asked to do a complete blink and then asked not to blink, time was recorded from last blink to first sign of dry spot.
- b. **ROSE BENGAL STAINING** Strip impregnated with rose Bengal dye was inserted in the conjunctival sac. Ocular surface was examined 1 minute later by using red free filter. Scoring was done by Van Bijsterveld scoring pattern
- c. **SCHIRMER’S TEST 1**
 The Whatman’s filter paper no.41 strip of size 5mm in width and 35 mm in length was used. The cut end of filter paper was inserted in the lower palpebral conjunctiva at the junction of middle and lateral 1/3rd of lower lid. After 5 minutes, the filter paper was removed and the amount of wetting was measured from cut end and a cut off of <5mm was considered as positive for dry eye. Criteria for diagnosis of dry eye
 - Presence of 3 positive symptoms
 - Tested positive for 2 out of the three tests used.⁷
 - The patients were subjected to a Mcmonnies questionnaire and their answers were graded.⁸

RESULTS

100 patients, 50 cases and 50 controls, who satisfied the criterias, were included in the study. The data was tabulated and following observations were made:

Relation between dry eyes and menopause

Table 1: Relation between dry eye and menopause

	No. of patients positive for dry eye	No. of patients negative for dry eye
Cases	24	26
Control	14	36

(p = 0.039)

In this study we found out that the number of patients, positive for dry eye, were 24 in the case group and 14 in the control group; while the number of patients negative for dry eye were 26 in the case group and 30 in control group. (p = 0.039, significant)

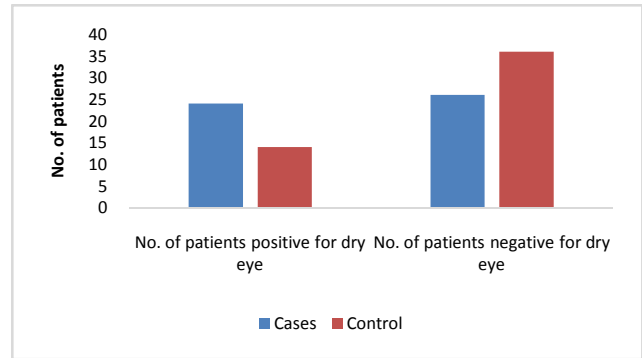


Figure 1: Relation between dry eye and menopause Occurrence of dry eyes and duration of menopause

Table 2: Duration of menopause and occurrence of dry eye

Duration of menopause (years)	No. of patients	No. of patients having dry eyes
1-5	17	7
6-10	7	3
11-15	12	7
16-20	7	4
>21	7	3

In this study, maximum number of patients having dry eyes ; i.e.7; had a duration of menopause ranging from 1- 5 years and 11-15 years. Minimum number of patients having dry eyes, i.e. 3, had a duration of menopause ranging from 6-10 years and >21 years. In this study we did not find a significant relation between the duration of menopause and occurrence of dry eye.

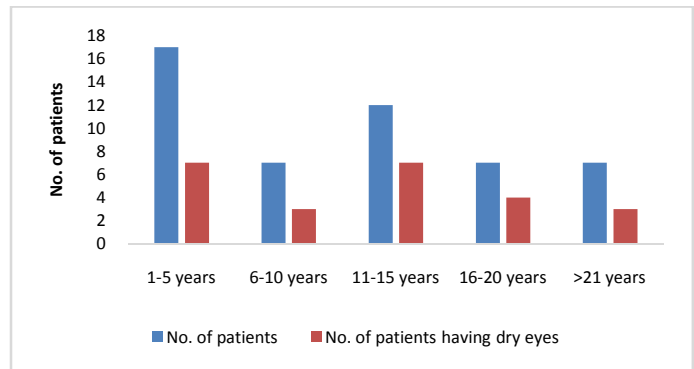


Figure 2: Duration of menopause and occurrence of dry eye

Table 3: Type of dry eye

Type of dry eye	Cases		Control	
	No. of patients	%	No. of patients	%
Aqueous deficiency	3	6	0	0
Tear film instability	11	22	7	14
Mixed	23	46	13	26

In this study, we found that case group had 23 patients (46 %) with mixed type, 11 patients (22%) had tear film instability and 3 patients (6%) had aqueous deficient dry eye. In the control group, 13 patients (26%) had mixed

type of dry eye, 7 patients (14%) had tear film instability and none of the patients (0%) had aqueous deficiency.

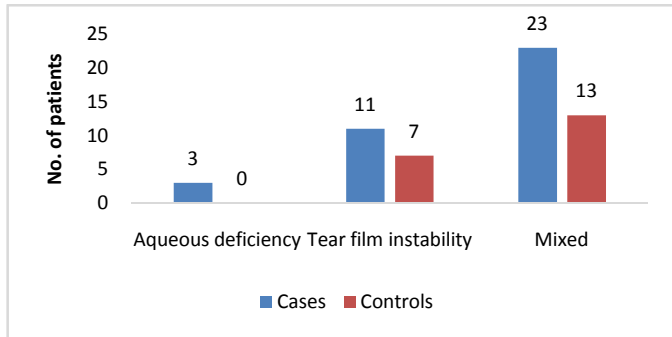


Figure 3: Type of dry eye

Table 4: Symptomatology

Symptoms	Cases	Control
Soreness	16	12
Scratchiness	33	22
Dryness	18	21
Grittiness	23	11
Burning	32	28

Above table shows the frequency of symptoms. Several patients showed overlap of symptoms. Maximum number of cases complained of scratchiness (33 patients), followed by burning (32 patients), grittiness (23 patients), dryness (18 patients) and soreness (16 patients), respectively. Maximum number of controls complained of burning (28 patients), followed by scratchiness (22 patients), dryness (21 patients), soreness (12 patients) and grittiness (11 patients), respectively.

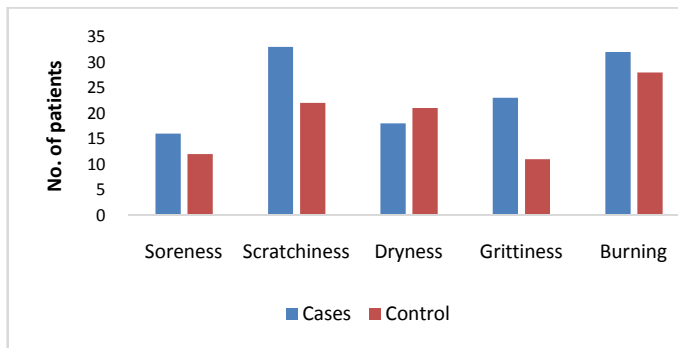


Figure 4: Symptomatology

Table 5: Correlation between symptoms and signs

	Cases	Controls
Signs	26	12
Symptoms	31	22

In the cases group, 26 patients presented with signs while 31 patients had no symptoms of dry eyes. In the control group, 12 patients presented with signs while 22 had no symptoms of dry eyes. The p value was calculated using chi square test and was found to be $p = 0.334$, which is

not significant. In this study there was no correlation between subjective symptoms and objective signs in the case as well as the control group.

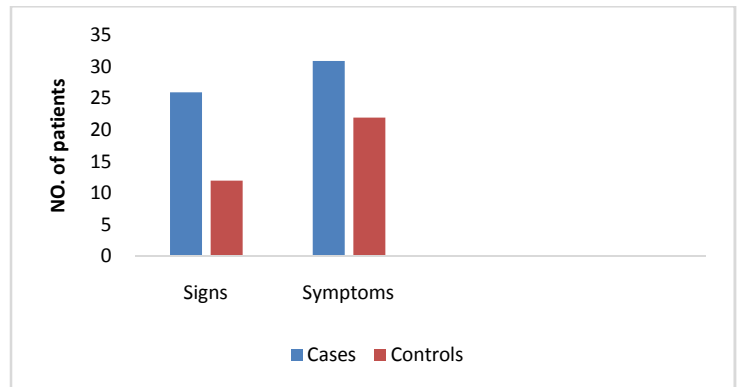


Figure 5: Correlation between symptoms and signs

DISCUSSION

Relation between dry eye and menopause (Table 1):

In this study we found out, that there is a significant difference between the incidence of dry eye in cases and control group, i.e., the post menopausal and the pre menopausal group. McCarty CA *et al* (1998) reported an increased incidence of dry eye and a significant decrease of tear production in women between 50 – 59 years of age.⁹ Moss SE *et al* (2000) in their study found out that 67% females had dry eyes of which 48.7 % females had attained menopause.¹⁰ Winter JH *et al* found in their study of evaluation of the clinical course of dry eye syndrome that, 80.4 % of patients were females.¹¹ Gayton JL (2008) in his study, ‘Etiology, prevalence and treatment of dry eye disease’, reported that dry eye is frequent in elderly patients and women, especially menopausal and post menopausal women.¹² Our findings support all the above studies.

Dry eye and duration of menopause (Table 2): In this study we did not find a significant relation between the duration of menopause and occurrence of dry eye. Erdem U *et al* (2007) in their study of post menopausal women using HRT found that there is a significant association between duration of menopause and occurrence of dry eye.¹³ Our study results do not correlate with the above study.

Types of dry eye (Table 3): In this study we found that, case group had 23 patients (46 %) with mixed type, 11 patients (22%) had tear film instability and 3 patients (6%) had aqueous deficient dry eye. In the control group, 13 patients (26%) had mixed type of dry eye, 7 patients (14%) had tear film instability and none of the patients (0%) had aqueous deficiency. Farrell *et al* (1992) found tear deficient dry eye in 14.7 % of cases and 70.6 % of cases had mixed dry eye in their study.¹⁴ Winter *et al*

(2003) reported 21.9% cases of tear sufficient dry eye, 21.6 % cases of tear deficient dry eye and 45.3 % cases of mixed dry eye.¹⁵ Our findings are in accord with the above studies.

Symptomatology (Table 4): In this study, maximum number of cases complained of scratchiness (33 patients), followed by burning (32 patients), grittiness (23 patients), dryness (18 patients) and soreness (16 patients), respectively. Maximum number of controls complained of burning (28 patients), followed by scratchiness (22 patients), dryness (21 patients), soreness (12 patients) and grittiness (11 patients), respectively. McMonnies reported dryness (69%), burning (20%) and grittiness (11%) as the most common symptoms in dry eye patients.¹⁶ Chia *et al* (2003) reported 57.5% of participants in their study presenting with symptoms of burning sensation and feeling of dryness.¹⁷ Our study correlate with the findings of above mentioned studies.

Correlation between signs and symptoms (Table 5): In this study, there was no correlation between subjective symptoms and objective signs in the case as well as the control group. Nichols JJ *et al* (2002) in their study reported weak association between the symptoms and signs of dry eye.¹⁸ Haya *et al* (1998) reported a poor association between symptoms and signs of dry eye as well.¹⁹ Our study results are in accord with the above results.

CONCLUSION

There is a significant difference in occurrence of dry eye in menopausal and pre menopausal group, with the incidence being higher in menopausal group. There was no significant relation between the duration of menopause and occurrence of dry eye. In the case and control group, mixed type of dry eye was more common than the aqueous deficient or tear film instability dry eye. In the case as well as control group, the symptoms of scratchiness and burning were the most commonly occurring symptoms. There was no correlation between subjective symptoms and objective signs.

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