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Original Research Article

Study of prevalence and severity of dry eye in post menopausal women

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ABSTRACT

Objectives: To assess the prevalence and severity of dry eye in post menopausal women presenting to our hospital. And to assess the prevalence of various types of dry eye in post-menopausal women.
Materials and Methods: 100 post-menopausal women were subjected to various tests for dry eye from June 2020 to June 2021.
Results: Out of 100 participants in our study, 33 (33%) fulfilled the diagnostic criteria of dry eye. The prevalence of dry eye showed an upward trend with increasing age, from only 2 (10.5%) in 46-50 years of age group to 13 (61.9%) in 66-70 years. The most common presenting symptoms were redness, urning and grittiness. It was found that 4 (12.1%) patients had evaporative type of dry eye,13 (39.3%) had tear deficient type and the most common variety was mixed type which was present in 16 (48.4%). 21% had mild dry eye, 9% had moderate and 3% had severe type of dry eye disease.
Conclusions: Milder forms of dry eye are more common and hence easily missed than severe forms. Every woman should have a regular eye check-up after menopause so that dry eye as a cause of visual impairment could be excluded and treated in time to prevent further ocular morbidity.

1. Introduction

Dry eye is defined as a multifactorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance and tear film instability with potential damage to ocular surface. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface.[1] There are various predisposing factors for the development of dry eye one among which is menopause.

Research shows that there is a role of oestrogen deficiency, leading to sebaceous gland alteration in post-menopausal women. This further causes destabilization of the tear film. Hence decreased estrogen levels after attainment of menopause may lead to development of dry eye.

To diagnose presence of dry eye, which can be present even in the absence of any symptom, few tests like tear film breakup time (TBUT), slit lamp examination of the anterior segment, schirmer-1 test and the Rose Bengal staining are performed.[2,3]

Use of symptom based validated questionnaire might be helpful for grading of symptoms as it is repeatable for comparative purpose before, during and after treatment. McMonnie's is one such quessionaire which has been used for this study.

This study aims to assess the prevalence & severity of dry eye in post- menopausal women attending ophthalmic OPD of our hospital. This study also aimed to know if the prevalence has any relation with increasing age.

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2. Materials and Methods

This prospective study was done in post-menopausal women attending outpatient department of Shadan Hospital, Shadan institute of Medical Sciences, Hyderabad.

2.1. Study period

(June 2020 to June 2021).

2.2. Ethical consideration

The study was started after getting clearance from institutional ethics committee. Written informed consent was taken before the procedure.

2.3. Study population

All post-menopausal women attending the out-patient department of ophthalmology.

2.4. Inclusion criteria

All Women who have attained menopause at least 1 year ago.

2.5. Exclusion criteria

1. Previous ocular trauma or surgery
2. Patients with ocular surface disorders
3. Patients on long term topical medications
4. Patients with any systemic disease known to cause dry eye.

2.6. Data collection

A detailed history pertaining to dry eye symptoms was taken from all the study participants and were subjected to visual acuity testing, anterior segment examination and various tests like dry eye by TBUT, schirmer's test and Rose-bengal staining in that order.

Their symptom evaluation was done by McMonnie's quessionaire. TBUT scores less than 10 seconds, schirmer's value of less than 5mm were considered abnormal. Van Bijsterveld scoring pattern was used for rose Bengal staining scores. Scores above 3.5 were considered abnormal.

3. Results

100 post-menopausal women who fulfilled eligibility criteria were included in the study.33 patients were found to have dry eye disease.

The Table 1 depicts the trend of increasing prevalence of dry eye disease with increasing age. The women in 66-70 age group had the highest prevalence among all the participants.

Redness, grittiness & burning were among the most common complaints.

Table 1: Age-group distribution of dry eye in the study group

Age	No. of patients	Pts with dry eye	% of dry eye
46-50	19	2	10.5
51-55	23	5	21.7
56-60	25	7	28
61-65	12	6	50
66-70	21	13	61.9

Table 2: Severity grades of dry eye

S. No	Dry eye staging	Number	Prevalence
1.	No dry eye	67	67
2.	Mild dry eye	21	21
3.	Moderate dry eye	9	9
4.	Severe dry eye	3	3

In our study of 100 post-menopausal women, 4 (12.1%) patients had evaporative type of dry eye, 13 (39.3%) had aqueous deficiency and 16 (48.4%) had mixed variety of dry eye.

4. Discussion

Tear film is responsible for a healthy ocular surface. There are 2 types of dry eye. First, the aqueous deficient dry eye which occurs due to reduced production of tears and the second is evaporative type of dry eye which occurs when there is increased evaporation of the normal volume of tears. Either of the two can give rise to a hyperosmolar tear film which is responsible for various symptoms of dry eye. These symptoms can be mild initially, ut with continued progression of the disease and absence of treatment, they can worsen and affect the quality of life adversely.

Our study attempts to find out the prevalence, severity, various symptoms and types of dry eye in post-menopausal female population of our hospital OPD. In this study, a total of 100 females of post-menopausal age group were examined out of whom only 33 (33%) had dry eye. The prevalence was as high as 52% in a recent study published by Banik et al. in 2018, where in they studied dry eye among both male & female subjects from Eastern India.[4] This difference could be because of various climatic and occupational differences.

All the patients included were in the age group of 46 to 70 years of age. They were divided into different groups depending on their age, each with an interval of 5 years. The minimum percentage of dry eye was seen in patients within the age group of 45-50 years i.e. 10% while maximum number of patients with dry eye was seen in patients >66 years of age i.e. 61%. In Beaver Dam offspring study, prevalence of dry eye symptoms increased with age in post-menopausal women[5] as in this study of ours.

In this study we found that**,** 16 patients (48.4%) had mixed type of dry eye, 4 patients (12.1%) had tear film

instability and 13 patients (39.3%) had aqueous deficiency dry eye. 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.[6] Our findings are well in comparison with the above study.

Dry eye is classified into mild, moderate & severe grades depending on various factors. In the present study their respective prevalence was 21, 9 & 3. Mild dry eye was the commonest whereas severe dry eye was a rare occurrence. However, 67% of females complaining of dry eye symptoms did not test positive in any of the three tests conducted (TBUT, Rose Bengal staining, Schirmer Test). In a similar study done in patients of all ages & both sexes, it was found that 48% of patients complaining of dry eye did not have evidence of dry eye when tested similar to our study.[7]

5. Conclusions

The following conclusions were formed from this study:

1. Dry eye can be present without any associated symptoms and so may be left undiagnosed for years.
2. It occurs in post-menopausal women.
3. Age is a risk factor for dry eye disease.
4. Mild dry eye disease is more common than the severe variety.
5. Regular eye examination should be done after menopause

Tear film substitutes are the mainstay of treating dry eye disease. Omega 3 fatty acids also help in non responding cases. Cyclosporine, which is an immunomodulator and low dose steroids can be tried to break the inflammatory cycle.

6. Limitations

The hormonal status of the patients was not evaluated so the nature of relationship between hormonal levels and prevalence of dry eye may be missed.

7. Source of Funding

None.

8. Conflict of Interest

None.

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