

Study Of Prevalence Of Dry Eye In Patients Using Timolol Eye Drops For Primary Open Angle Glaucoma

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ABSTRACT

AIM: The aim of this study is to assess the prevalence of dry eye in patients who are being treated with timolol eye drops for primary open angle glaucoma.**MATERIALS AND METHODS:** A total of 50 patients who were diagnosed with POAG and being treated with timolol eye drops for 6 months or more, coming to the Department of Ophthalmology between July 2019 and December 2019 were evaluated in the study. Other than the routine Ophthalmic examinations, TBUT and Schirmer's test were performed.**RESULTS:**Of the 50 patients examined, Schirmer's test was abnormal in 54% of the patients in the right eye and 52% of the patients in the left eye.42% of the examined patients had abnormal TBUT in right eye and 44% of the examinedpatients had abnormal TBUT in the left eye.**CONCLUSION:**Conclusion of the study is that,long term use of Timololaffects the tear film functions to varying extents. This can be due to multiple factors and it could be because of thedrug itself or the preservative used in it or it could be both. Due to the complications that can happen because of dry eye, it is important to keep in mind the long-term side-effects of these drugs even when obvious symptoms are absent. The outcome of further surgeries which may need to be performed may also be affected by dry eye.

KEYWORDS: *tear film, ocular surface, topical agents, POAG, timolol.*

I. INTRODUCTION

AIM: The aim of this study is to assess the prevalence of dry eye in patients who are being treated with timolol eye drops for primary open angle glaucoma.

MATERIALS AND METHODS: A total of 50 patients who were diagnosed with POAG and being treated with timolol eye drops for 6 months or more, coming to the Department of Ophthalmology between July 2019 and December 2019 were evaluated in the study. Other than the routine Ophthalmic examinations, TBUT and Schirmer's test were performed.

STUDY DESIGN:Analytical study

SOURCE OF DATA:50 Patients visiting the Department of Ophthalmology at Meenakshi medical college between July 2019 to December 2019, fulfilling the selection criteria.

SAMPLE SIZE: 50 patients

INCLUSION CRITERIA:

- Known cases of POAG using timolol eye drops for more than 6 months.

EXCLUSION CRITERIA:

- Patients with pre-existing ocular or systemic conditions which can cause dry eye.
- Ocular surgery within the past 1 year
- Current smokers
- Patients using other topical medications like lubricating eye drops, sodium cromoglycate eye drops, topical or systemic steroids, antipsychotics and anti-histamines.
- Patients with a history of uncontrolled diabetes mellitus, cardiovascular diseases, connective tissue disorders, ocular trauma, laser therapy are excluded from the study.

A written informed consent was taken from each patient. A brief history about the presenting complaints, drug history, surgical history and personal history was taken. Clinical examination was carried out in each patient which included tear film breakup time (TBUT) and Schirmer's test.

Tear break up time (TBUT): The conjunctiva is first stained by using sterile fluorescein strips and then examined with a slit lamp under cobalt blue filter. The time taken for a dark (dry) spot to appear on the cornea after one complete blink is noted in seconds. An average of three readings is taken.

Schirmer's test without anaesthesia: A Schirmer's strip is 5mm x 35mm and made of Whatman no. 41 filter paper. It is folded at 1mm and placed in the lower fornix between the lateral one third and the medial two third. It is left there for 5 mins. After 5 mins, the level of wetting of the strip is noted using the scale marked on the Schirmer's strip.

II. DISCUSSION

The ocular surface has the tear film which is important for maintaining its health. The tear film is made of multiple components necessary for that. Decreased tear secretion or impaired function can lead to instability of the tear film, causing ocular surface diseases. One of the common causes for this is the use of certain topical medications. Glaucoma is the second most common cause of irreversible blindness. So many people are under long term treatment with topical drugs like alpha agonists, beta blockers, prostaglandin analogues, carbonic anhydrase inhibitors to maintain the IOP. These are likely to cause ocular surface changes like decrease in tear secretion, tear break up time changes and epithelial changes in the cornea and conjunctiva. Dry can make a patient susceptible to infections, inflammations, corneal ulcerations etc. Hence it is important to assess patients under long term treatment and manage appropriately.

III. RESULTS

54% of the patients had abnormal Schirmer's test in the right eye and 52% of the patients had abnormal Schirmer's test in the left eye.

TBUT was abnormal in 42% of the glaucoma patients in right eye and 44% of the patients in left eye.

S. NO.	PATIENT ID	AGE	DURATION OF TIMOLOL USE (months)	SCHIRMER'S TEST (mm)		TBUT (seconds) (average of three readings)	
				RIGHT EYE	LEFT EYE	RIGHT EYE	LEFT EYE
1	270402	63	6	14	14	15	16
2	682111	43	10	7	8	9	9
3	685911	57	12	8	8	9	8
4	783375	60	16	13	14	16	16
5	976925	42	10	6	7	8	8
6	1021879	65	18	5	6	7	8
7	077829	73	12	15	14	17	16
8	228780	62	12	5	5	7	7
9	1001049	46	16	13	12	15	15
10	1063322	50	20	5	7	8	9
11	1072631	60	9	16	15	16	16
12	1166450	56	7	14	12	12	13
13	1226597	72	6	15	16	16	14
14	120756	43	12	8	7	9	8
15	270402	63	13	7	7	8	8
16	746270	63	6	16	15	15	14
17	793266	82	14	6	8	8	8
18	899542	62	9	14	15	14	14
19	1112673	68	12	8	7	8	8
20	1115369	58	10	9	11	12	13
21	1174186	43	14	8	8	11	9
22	1208738	66	9	16	16	14	15
23	1208760	66	14	8	8	9	9
24	0000001	71	16	7	8	9	9
25	1220824	53	6	15	15	15	16
26	1220830	54	12	16	15	16	14
27	1221406	74	16	6	5	7	7
28	1221483	86	10	8	8	11	12
29	1221494	66	10	7	6	8	7
30	1221505	64	9	15	16	16	15
31	1221516	56	8	16	16	14	15
32	1221538	45	14	6	6	8	7
33	2616334	70	20	4	5	6	6
34	2617810	70	6	15	16	15	16
35	2617815	80	24	4	5	7	7

36	2619318	60	18	7	7	8	7
37	2623913	65	18	8	8	11	9
38	2623940	53	12	8	9	12	11
39	2625538	75	10	9	8	9	9
40	2625541	79	10	9	9	11	12
41	2633780	66	18	8	9	9	9
42	2648071	46	6	16	15	15	14
43	2648121	60	8	14	15	13	12
44	2661975	60	8	16	14	16	16
45	2665136	65	10	12	13	16	15
46	2680335	75	12	14	16	16	15
47	2681805	60	12	15	14	14	15
48	2681894	65	20	5	6	7	7
49	2684916	48	16	15	16	15	16
50	2686474	65	18	11	12	16	17

IV. CONCLUSION

Our study concludes that chronic use of topical medication for glaucoma does impair the ocular surface and the functions of the tear film. The extent of the impairment varies and that depends on various factors. The cause could either be the medication itself or the preservative compound or both. Due to the complications that can happen because of dry eye, it is important to keep in mind the long-term side-effects of these drugs even when obvious symptoms are absent. The outcome of further surgeries which may need to be performed may also be affected by dry eye.

Therefore, this study provides an insight into the tear film disturbance that can arise and suggests periodic subjective and objective assessment of the ocular surface is needed in the follow up of glaucoma patients on prolonged treatment.

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