

Effects of Vitamin D Supplementation in Type 2 Diabetics with Dry Eye

Dr Anju Pilania

Date of Submission: 13-12-2022

Date of Acceptance: 28-12-2022

I. INTRODUCTION

□ Diabetes mellitus is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both.

□ Diabetes mellitus is associated with a number of ocular complications . Problems involving the ocular surface, dryness in particular, have been reported. (1- 6)

• The mechanism responsible for dry eye is thought to be autonomic dysfunction and neuropathy related to diabetes. (7)

• An association between dry eye and low serum 25-hydroxy vitamin D concentration has been reported. (8)

□ In short term studies, vitamin D supplementation improved the disposition index, a measure of pancreatic beta-cell function by 40%. (9)

□ The present study is aimed at patients with diabetes mellitus II and dry eye and finding the effect of vitamin D supplementation on dry eye in these patients in our hospital.

AIM

□ To study the effects of vitamin D supplementation in type 2 diabetics with dry eye.

OBJECTIVES

□ To identify patients of type 2 diabetes mellitus with symptomatic dry eye.

□ To study the effect of vitamin D supplementation on dry eye in type II diabetic patients

INCLUSION CRITERIA

1. Known type 2 diabetic patient of either gender.

2. Patients with symptomatic dry eye.

3. Patients who gave voluntary written informed consent.

EXCLUSION CRITERIA

1. Patients with systemic disease and local ocular disease/ surface abnormalities, other than diabetes mellitus which are known to cause dry eye or ocular surface abnormalities.

2. Contact lens wearers.

3. Patients who have undergone ocular surgeries in the past.

4. Patients on local or systemic medications, which are known to cause dry eye.

5. Uncooperative patients

II. Material And Method

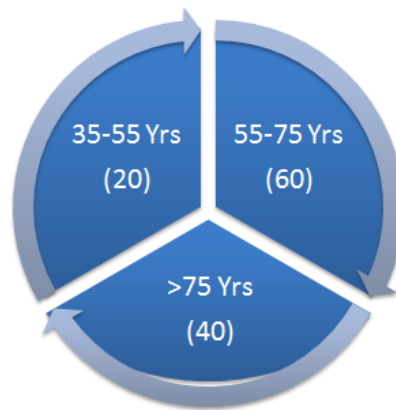
- Hospital based longitudinal interventional study.
- All known type II diabetic patients of either gender presented in eye OPD with symptomatic dry eye were further subjected to detailed history, slit lamp and fundus examination.
- Inclusion and exclusion criteria was applied to these patient.
- Also, a control group of 120 patients who presented with dry eye symptoms only(not diabetic) were taken in the study.
- Tear film breakup time(TBUT) and schirmer’s test was done for dry eye and pre-designed questionnaire(OSDI) was filled up for both the groups.

•Vitamin D supplementation 60,000IU (UPRISE-D3)one sachet once a week along with eye drop carboxymethylcellulose (0.5% w/v)was given and a follow up after four and six weeks was performed.

•TBUT and schirmer’s test was done for dry eye and pre-designed questionnaire was filled up in both the follow up visits.Data was then compared between both the groups and improvement was analysed.

III. OBSERVATION AND RESULTS

Male=50
Female=70



TESTS	AT PRESENTATION (DAY 1)	1 ST FOLLOW UP VISIT (4WEEKS)	2 ND FOLLOW UP VISIT (6WEEKS)
TBUT:-			
Test	6s±1s	9.5s±1s	11.5±1s
Control	6.5s±1s	8.5±1s	9.5±1s
SCHIRMER’Test			
Control	5mm±1s	7.5mm±1s	10mm±1s
	4.5mm±1s	5.5mm±1s	7.5mm±1s
OSDI			
Test	2-3	1-2	0-1
Control	3-4	2-3	1-2

IV. CONCLUSION

- Patients with Type 2 diabetes mellitus with symptomatic dry eye,when given vitamin D supplementation,showed significant improvement in dry eye symptoms.
- Weakness:-Blood vitamin D3 levels couldn’t be done due to financial limitations.

REFERENCES

[1]. Moss SE, Klein R, Klein BE. Prevalence of and risk factors for dry eye syndrome. Arch Ophthalmol. 2000;118:1264–8.
 [2]. Pai S, Pai SR, Ashwin. A. A. NK, Kini RD. A comparative study of changes in tear film function in normal and type ii diabetic subjects in south Indian population. Int J Biomed Adv Res [Internet]. 2011 Oct 9 [cited 2014Mar 21];2(7). Available from: <http://ijbar.ssjournals.com/index.php/journal/article/view/55>

- [3]. Yoon K-C, Im S-K, Seo M-S. Changes of tear film and ocular surface in diabetes mellitus. *Korean J Ophthalmol KJO*. 2004;18:168–74.
- [4]. Wang T-J, Wang I-J, Hu C-C, Lin H-C. Comorbidities of dry eye disease: a nationwide population-based study. *Acta Ophthalmol (Copenh)*. 2012;90:663–8.
- [5]. Kaiserman I, Kaiserman N, Nakar S, Vinker S. Dry eye in diabetic patients. *Am J Ophthalmol*. 2005;139:498–503.
- [6]. Dogru M, Katakami C, Inoue M. Tear function and ocular surface changes in noninsulin-dependent diabetes mellitus. *Ophthalmology*. 2001;108:586–92.
- [7]. Manaviat MR, Rashidi M, Afkhani-Ardekani M, Shoja MR. Prevalence of dry eye syndrome and diabetic retinopathy in type 2 diabetic patients. *BMC Ophthalmol*. 2008;8:10.
- [8]. Bae SH, Shin YJ, Kim HK, et.al. Vitamin D supplementation for patients with dry eye. *Scientific reports*. 2016; 10.1038/srep33083.
- [9]. Pittas AG, Hughes BD, et.al. Vitamin D supplementation and prevention of type 2 Diabetes, *N Engl J Med* 381;6, 2019

Dr Anju Pilania. "Effects of Vitamin D Supplementation in Type 2 Diabetics with Dry Eye."
IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), 21(12), 2022, pp. 41-43.