بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

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جامعة عين شمس

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MONA MAGHRABY

Assessment of the Effect of Vitamin D Deficiency on Ocular Dryness

Thesis

Submitted for Partial Fulfillment of
Master Degree in **Ophthalmology**

By

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Mohamed Adel El-Sherbeny

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List of Abbreviations

Abb.	Full term
3D	*Three-dimensional*
ACA	*Anterior chamber angle*
ACE	*Angiotensin I converting enzyme*
AKC	*Atopic keratoconjunctivitis*
AOD	*Angle opening distance*
AQP1	*Aquaporin 1 channel*
AS-OCT	*Anterior segment OCT*
CAI	*Carbonic anhydrase*
CXL	*Corneal collagen cross-linking*
DED	*Dry eye disease*
DEWS	*International Workshop on Dry Eye*
DMD	*Descemet's membrane detachment*
DMEK	*Descemet's membrane endothelial keratoplasty*
DSAEK	*Descemet's membrane stripping automated endothelial keratoplasty*
FD-OCT	*Fourier domain OCT*
HIV	*Human immunodeficiency*
HSV	*Herpes simplex virus*
IOP	*Intraocular pressure*
LDS	*Lacrimal dysfunction syndrome*
LFU	*Lacrimal Functional Unit*
LG	*Lissamine green*
LIPCOF	*Lid-parallel conjunctival folds*

List of Abbreviations cont...

Abb.	Full term
LWE	*Lid wiper epitheliopathy*
MGD	*Meibomian gland dysfunction*
NITBUT	*Noninvasive tear breakup time*
OCT	*Optical coherence tomography*
PKP	*Penetrating keratoplasty*
RA	*Rheumatoid arthritis*
SLE	*Systemic lupus erythematosus*
SS	*Sjögren's Syndrome*
TF	*Tear film*
TFT	*Tear film thickness*
TISA	*Trabecular-iris space area*
TMA	*Tear meniscus area*
TMD	*Tear meniscus depth*
TMH	*Tear meniscus height*
UBM	*Ultrasound biomicroscopy*
VKC	*Keratoconjunctivitis*

INTRODUCTION

Dry eye is a multifactorial condition characterized by chronic inflammation of the lacrimal functional unit and loss of tear film stability causing deterioration in normal functions. The common symptoms of dry eye are ocular discomfort, soreness, redness, ocular fatigue, sensitivity to light and blurred vision ***(Yildirim et al., 2016).***

Patients who have dry eye may also complain of eye irritation, a gritty or foreign body sensation, burning, tearing, photophobia, stinging, or intermittent sharp pain. A careful history taking contributes greatly to a correct diagnosis.

Dry eye signs identified on slit-lamp examination include superficial corneal erosions, inadequate tear lake volume, early tear film break-up time, conjunctival hyperemia, conjunctival surface irregularities, and meibomian gland dysfunction ***(Zeev et al., 2014).***

The prevalence of dry eye tends to be less in males but the age effect is still observed (e.g., 4% prevalence in males aged 50–54 years versus >7% in those older than 80), older age was found to be significantly associated with increased dry eye prevalence ***(Yang et al., 2018).***

Dry eye and impaired tear function are occasional symptoms of vitamin D deficiency, vitamin D is a fat-soluble

vitamin, which is produced in the skin following exposure to sunlight ***(Li et al., 2012).***

It has essential functions in cartilage and bone via vitamin D receptors, in addition to its well-recognized role in musculoskeletal and mental health (***Qvist et al., 2019).***

Over the last decade vitamin D deficiency, described commonly as serum 25 hydroxyvitamin D levels of < 20 ng/mL is increasingly thought to be linked to various health problems, including malignancies, type 2 diabetes mellitus and hypertension and cardiovascular diseases and also eye disorders such as optic neuritis and myopia ***(Pereira et al., 2012).***

In addition, it is proposed that vitamin D may help to prevent dry eyes by inducing cathelicidin, an anti-microbial protein that can be produced by cells in the eyes and heal eye wounds ***(Yildirim., 2016).***

Studies have found that older people tend to have lower vitamin D levels, and therefore they have been suggested to be prescribed higher supplementary doses ***(Marcos-Pérez et al., 2020).***