



شبكة المعلومات الجامعية
التوثيق الإلكتروني والميكروفيلم

بسم الله الرحمن الرحيم



MONA MAGHRABY



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شبكة المعلومات الجامعية التوثيق الإلكتروني والميكروفيلم



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جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Relation Between Vitamin D Deficiency and Dry Eye

Thesis

*Submitted for Partial Fulfilment of Master Degree
in Ophthalmology*

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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

قالوا

سبحانك لا علم لنا
إلا ما علمتنا إنك أنت
العليم العليم

صدق الله العظيم

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List of Contents

Title	Page No.
List of Tables	I
List of Figures.....	II
List of Abbreviations	IV
Introduction	1
Aim of the Work.....	3
Review of Literature	
Anatomy	4
Physiology	12
Dry Eye	19
Vitamin D and Effect of Vitamin D Deficiency	33
Patients and Methods	42
Results	48
Discussion	59
Summary	63
Conclusion.....	66
References	67
Arabic Summary.....	—

List of Tables

Table No.	Title	Page No.
Table 1:	The physiochemical characteristics of human precorneal tear film.	13
Table 2:	DEWS Dry Eye Grading Scheme.....	32
Table 3:	Demographic data and characteristics of the studied patients.....	48
Table 4:	Comparison between patients' group and control group regarding demographic data, symptoms of dry eye, conjunctival hyperaemia, TFBUT, Shirmer test and Serum 25 OH vitamin D among the studied patients.....	50
Table 5:	Correlation between serum 25 OH vitamin D with age, TFBUT and Shirmer test.....	55
Table 6:	Relation of vitamin D levels with sex, symptoms of dry eye and conjunctival hyperaemia	56

List of Figures

Fig. No.	Title	Page No.
Figure 1:	Tear system.....	5
Figure 2:	Histology of the lacrimal gland	6
Figure 3:	Diagram summarizing the sensory (trigeminal nerve), secretomotor (facial nerve) and sympathetic innervation of the lacrimal gland.....	8
Figure 4:	Accessory lacrimal glands.	9
Figure 5:	Histopathology of corneal epithelium.....	11
Figure 6:	The three-layered structure of the tear film	14
Figure 7:	The tear film structure	15
Figure 8:	Etiological classification of dry eye.....	20
Figure 9:	Classic triad of Sjögren syndrome.	22
Figure 10:	Mechanisms of dry eye.	25
Figure 11:	Meibomian gland dysfunction (Meibomian gland orifices on the eyelid margin blocked by thickened Meibomian secretion).....	28
Figure 12:	Vital staining of the ocular surface in a patient with dry eye disease	29
Figure 13:	Schematic representation of the synthesis and metabolism of vitamin D.	36
Figure 14:	Tear film break up time test	44
Figure 15 :	Schirmer strips.....	46
Figure 16:	Sex distribution among the studied cases.	49
Figure 17:	Rate of symptoms of dry eye among the studied cases.....	49
Figure 18:	Rate of conjunctival hyperaemia among the studied cases.....	49

List of Figures Cont...

Fig. No.	Title	Page No.
Figure 19:	Comparison between patients' group and control group regarding age of the studied cases.	50
Figure 20:	Comparison between patients' group and control regarding sex of the studied cases.	52
Figure 21:	Comparison between patients' group and control group regarding symptoms of dry eye and rate of conjunctival hyperaemia.	52
Figure 22:	Comparison between patients' group and control group regarding TFBUT and Shirmer test.	53
Figure 23:	Comparison between patients' group and control group regarding level of serum 25 (OH) vitamin D.....	53
Figure 24:	Receiver operating characteristic curve (ROC) for serum 25 (OH) vitamin D as a predictor for symptoms of dry eye.....	54
Figure 25:	Correlation of serum 25 (OH) vitamin D with TFBUT.....	55
Figure 26:	Correlation of serum 25 (OH) vitamin D with Shirmer test.	56
Figure 27:	Relation of serum 25 (OH) vitamin D level with sex of the studied cases.	57
Figure 28:	Relation of serum 25 (OH) vitamin D level with symptoms of dry eye among the studied cases.....	57
Figure 29:	Relation of serum 25 (OH) vitamin D with conjunctival hyperaemia among the studied cases.....	58

List of Abbreviations

Abb.	Full term
AIDS	Acquired immunodeficiency syndrome
AMD	Age-related macular degeneration
ATD	Aqueous tear deficiency
AUC	Area under curve
CN.....	Cranial nerve
CD 4	Cluster of differentiation 4
DED	Dry eye disease
DEWS	Dry eye workshop study
DR.....	Diabetic retinopathy
EDE	Evaporative dry eye
HIV	Human immunodeficiency virus
HLA	Human leukocyte antigen
Ig-A.....	Immunoglobulin A
IL-1 α	Interleukin -1 alpha
IOP.....	Intraocular pressure
IQR	Interquartile range
IU.....	International unit
LIPCOFs.....	Lid-parallel conjunctival folds
MGD	Mibomian gland dysfunction
NPV	Negative predictive value

List of Abbreviations Cont...

Abb.	Full term
NSDE.....	Non-Sjögren syndrome dry eye
OAG	Open angel glaucoma
POTF	Preocular tear film
PPV	Positive predictive value
PTH	Parathyroid hormone
RDI	Recommended daily intake
ROC	Receiver operating characteristic curve
SPSS	Statistical package for social science
SSDE	Sjögren syndrome dry eye
TFBUT	Tear film break-up time
Th	T helper cells
TLL.....	Tear lipid layer
TNF- α	Tumour necrosis factor alpha
UVB.....	Ultraviolet B
VDR	Vitamin D receptors

Introduction

Dry eye disease 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 the ocular surface. It is accompanied by increased osmolarity of the tear film and subacute inflammation of the ocular surface”. It is an extremely common condition, particularly in postmenopausal women and the elderly. ⁽¹⁾

Vitamin D is a multifunctional hormone, which not only affects calcium homeostasis, but also plays a role in immune system regulation as well as cell growth and survival. Many tissues in the eye are able to both activate and respond to vitamin D, suggesting that vitamin D is a biologically relevant molecule to study throughout the eye. Epidemiological studies demonstrate that vitamin D levels and genetic variations influence the development of a wide range of ocular pathologies such as myopia, age-related macular degeneration, diabetic retinopathy, and uveitis. In addition, at the cellular level, vitamin D is able to reduce inflammatory mediators, enhance barrier function, and induce cell death of cancerous cells. ⁽²⁾

Vitamin D can play a role in dry eye due to its secretory and anti-inflammatory properties. Vitamin D deficiency may reduce dopamine function which is responsible for

parasympathetic tone, which may lead to decrease tears secretion. ⁽³⁾ It has a protective function against the inflammatory mediators (cytokines) associated with the pathogenesis of dry eye. It may help prevent dry eyes by inducing cathelicidin (an anti-microbial protein produced by corneal and conjunctival epithelial cells), and promotes corneal and conjunctival wound healing. ⁽⁴⁾

Aim of the Work

The aim of this study is to demonstrate the relation between vitamin D deficiency and dry eye searching for finding a correlation between dry eye parameters with vitamin D deficiency.