PHYSIOLOGICAL SENILE CHANGES OF THE HUMAN EYE

An essay submitted in partial fulfillment of master degree in ophthalmology

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تغيرات الشيخوخة الفسيولوجية للعين البشرية

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LIST OF ABBREVIATIONS

A2E	Lipofuscin fluorophore
AGEs	Advanced glycation end products
A-P axis	Antro-posterior axis
ATP	Adenosine tri-phosphate
b	bulbar conjunctiva
bm	basal membrane
BM	Bruch’s membrane
c	caruncle
c	collagen fibers
c	Schlemm’s canal
CCT	Central corneal thickness
CM	Ciliary muscles
CNS	Central nervous system
CX	Cystic space
DM	Dilator muscle
E	Epithelium
el	elastic fibers
f	forniceal zones of the conjunctiva

F	Fibril-granular material
F	Fibrosis within ciliarymuscle
FR	Fuchs' roll
G	Ganglion cells
GAGs	Glucosaminoglycans
GJs	Gap junctions
H	Henle fibres
ICZ	Inner collagenous zone
ILL	Internal limiting membrane
IMPs	Intramembrane particles
INL	Inner nuclear layer
IS	Inner segment
KCS	Keratoconjunctivitis sicca
l	limbal area
mf	microfilaments
mtDNA	mitochondrial DNA
nf	nerve fibers
OCZ	Outer collagenous zone
OLM	Outer limiting membrane
ONL	Outer nuclear layer

OS	Outer segment
p	palpebral or tarsal conjunctiva
PNS	Peripheral nervous system
PVD	Posterior vitreous detachment
ROS	Reactive oxygen species
RPCD	Reticular peripheral cystoid degeneration
RPE	Retinal pigment epithelium
s	semilunar fold (s)
SC	Schlemm’s canal
SL	Schwalbe’s line
SM	Squamous metaplasia
sm	smooth muscle cells
SP	Sphincter pupillae
st	stroma
TA	Tubular aggregates
TC	Trabecular cells
TMW	Trabecular meshwork
TPCD	Typical peripheral cystoid degeneration
Uv	Uveal Trabecular meshwork
UVR	Ultraviolet radiation

Introduction

Aging is a process of gradual and spontaneous change, resulting in maturation through childhood, puberty and young adulthood then decline through middle and old age (Richard et al., 2007).

Visual impairment among the elderly is a major health problem. With advancing age, the normal function of ocular tissues decreases and there is an increased incidence of ocular pathology (Loh and Ogle, 2004).

Age-related eye changes include functional alterations in accommodation, acuity, refractive power , visual fields, contrast sensitivity, corneal sensation , dark adaptation and tear production as well as multiple structural changes including lens enlargement resulting in narrowing of anterior chamber angle, decrease lens translucency resulting in decreased retinal illumination, also there may be rod cell loss, liquefaction of vitreous gel, loss of eyelid tone and rising of intra ocular pressure (Landefeld et al., 2004).