



**Comparison between the effectiveness of
Optical Coherence Tomography Angiography
and Fundus Fluorescein Angiography in the
Diagnosis and Management of Wet Age-Related
Macular Degeneration**

Thesis

*Submitted For Partial Fulfillment
of Master Degree in Ophthalmology*

By

Yasmine Zakarya AbdelWadood

M.B.B.CH

Faculty of Medicine
Ain Shams University

Supervised by

Prof. Dr. Fikry Mohamed Zaher

Professor of Ophthalmology
Faculty of Medicine
Ain Shams University

Prof. Dr. Mohamed Gamil Metwally

Professor of Ophthalmology
Faculty of Medicine
Ain Shams University

Dr. Bassem Fayez Aziz

Lecturer of Ophthalmology
Faculty of Medicine
Ain Shams University

**Faculty of Medicine
Ain Shams University
2019**



Acknowledgement

First of all, all gratitude is due to **Allah** almighty for blessing this work, until it has reached its end, as a part of his generous help, throughout my life.

Really I can hardly find the words to express my gratitude to **Prof. Dr. Fikry Mohamed Zaher**, Professor Of Ophthalmology, Faculty Of Medicine, Ain Shams University, for his supervision, continuous help, encouragement throughout this work and tremendous effort he has done in the meticulous revision of the whole work. It is a great honor to work under his guidance and supervision.

I would like also to express my sincere appreciation and gratitude to **Prof. Dr. Mohamed Gamil Metwally**, Professor Of Ophthalmology, Faculty of Medicine, Ain Shams University, for his continuous directions and support throughout the whole work.

I cannot forget the great help of **Dr. Bassem Fayez Aziz** Lecturer Of Ophthalmology, Faculty of Medicine, Ain Shams University, for his invaluable efforts, tireless guidance and for his patience and support to get this work into light.

Last but not least, I dedicate this work to my family, whom without their sincere emotional support, pushing me forward this work would not have ever been completed.



Yasmine Zakarya AbdelWadood

Contents

Subject	Page No.
List of Abbreviations.....	i
List of Tables	ii
List of Figures	iii
Abstract	xii
Introduction	1
Aim of the Work	4
Review of Literature	
▪ Age-Related Macular Degeneration	5
▪ The Role of Imaging in Wet-Age Related Macular Degeneration	17
▪ Management of Wet-Age Related Macular Degeneration	60
Patients & Methods	66
Results	73
Discussion	83
Conclusion	90
Recommendations	91
Limitation.....	92
Summary	93
References	95
Arabic Summary	—

LIST OF ABBREVIATIONS

Abb.	Full Term
AMD	: Age-Related Macular Degeneration
AREDS	: Age-Related Eye Disease Study
BM	: Bruch's Membrane
CNV	: Choroidal Neovascularization
EDI	: Enhanced depth imaging
FAZ	: Foveal avascular zone
FDA	: Food and drug administration
FFA	: Fundus fluorescein angiography
GA	: Geographic atrophy
HRF	: Hyperreflective foci
ICG	: Indocyanine green
MPS	: Macular photocoagulation studies
nAMD	: Neo-Vascular age-Related macular degeneration
NEI	: National Eye Institute
NHANES	: National Health and Nutrition Examination Survey
NIH	: National Institutes of Health
OCT	: Optical Coherence Tomography
OCTA	: Optical coherence tomography angiography
PCV	: Polypoidal choroidal vasculopathy
PDGF	: Platelet derived growth factor
PDT	: Photodynamic therapy
RAP	: Retinal angiomatous proliferation
RPD	: Reticular Pseudo-Drusen
RPE	: Retinal pigment epithelium
SD-OCT	: Spectral Domain Optical Coherence Tomography
SS	: Swept-source
SSADA	: Split-spectrum Amplitude Decorrelation Angiography
VEGF	: Vascular endothelial growth factor
WHO	: World health organization

List of Tables

Table No.	Title	Page No.
Table (1):	Fluorescein Angiography vs. OCT Angiography.....	54
Table (2):	Demographic characteristics of the studied cases	74
Table (3):	CNV activity and inactivity among the studied cases.....	74
Table (4):	Diagnostic performance of OCTA technique in diagnosing activity	77

List of Figures

Fig. No.	Title	Page No.
Fig. (1):	Color fundus photograph of the left eye with dry AMD. Numerous small and intermediate-sized drusen are visible in the macular region (oval) (<i>Davis et al., 2005</i>).....	9
Fig. (2):	Color fundus photograph from an individual with dry AMD, depicting the presence of numerous large (>125 micron diameter), calcified drusen deposited primarily within the peri- and parafoveal regions. Smaller drusen are present in the foveal region (asterisk) (<i>Davis et al., 2005</i>).	9
Fig. (3):	FFA of drusen (<i>Barry et al., 2000</i>)	10
Fig. (4):	Color fundus photograph of an eye with central geographic atrophy involve the macula. (<i>Klein et al., 2008</i>).	11
Fig. (5):	Multicolor imaging showing a yellowish-green reticular pattern and some RPD with a target appearance characterized by a more intense yellowish/greenish core surrounded by a decreased intensity (<i>Querques et al., 2011</i>).	11
Fig. (6):	The pathogenesis of age related macular degeneration (AMD) (<i>Jerzy, 2006</i>).	13
Fig. (7):	A) normal amsler grid, B) In patient with wet AMD.	16
Fig. (8):	<i>Choroidal flush</i> . In a normal patient, the dye appears first in the choroid approximately 10 seconds following injection (<i>Barry et al., 2000</i>).	19
Fig. (9):	<i>Arterial phase</i> . The retinal arterioles typically fill one to two seconds after the choroid; therefore, the normal "arm-to-retina" circulation time is approximately 12 seconds (<i>Barry et al., 2000</i>).	19
Fig. (10):	<i>Arteriovenous phase</i> . Complete filling of the retinal capillary bed follows the arterial phase and the retinal veins begin to fill (<i>Barry et al., 2000</i>).	20
Fig. (11):	<i>Venous phase</i> . Complete filling of the veins occurs over the next ten seconds with maximum vessel fluorescence occurring approximately 30 seconds after injection. The perifoveal capillary network is best visualized in the peak venous phase of the angiogram (<i>Barry et al., 2000</i>).	20
Fig. (12):	Mid Phase also known as the recirculation phase, this occurs about 2 to 4 minutes after injection (<i>Barry et al., 2000</i>).	21
Fig. (13):	The late phase demonstrates the gradual elimination of dye from the retinal and choroidal vasculature. Photographs are typically	

captured 7 to 15 minutes after injection. Late staining of the optic disc is a normal finding. Any other areas of late hyperfluorescence suggest the presence of an abnormality (<i>Barry et al., 2000</i>).....	21
Fig. (14): Fundus fluorescence angiography (FFA) characteristics of occult CNV, fibrovascular PED type. The early phase (A) shows a stippled hyperfluorescence followed by progressive increase of hyperfluorescence at mid-phase (B) and late-phase angiogram (C) (<i>Victor, 2019</i>).	22
Fig. (15): Photograph and fluorescein angiogram, late leakage = occult type wet ARMD.	23
Fig. (16): Classic CNV (<i>Gess et al., 2011</i>)..	24
Fig. (17): Predominantly classic CNV (<i>Gess et al., 2011</i>).....	24
Fig. (18): A 61-year-old woman with retinal angiomatous proliferation. (A) Fundus photograph showing distortion of the macula with yellowish scar change surrounding a cyst-like lesion (red arrow). (B) Fluorescein angiogram revealing dense hyperfluorescence with diffuse leakage of dye in cystic spaces near, but not inside, the fovea (arrow). (C) Indocyanine green angiogram showing the presence of a RAP, which is classified as an irregular hyperfluorescence with termination of the retinal vasculature (arrow head). (D) Optical coherence tomography scan showing subretinal tissue presumably corresponding to the yellowish scar change visible on the color photo (dotted black arrow). Note the inner retinal cystoid cavities above (<i>Lim et al., 2013</i>).	26
Fig. (19): Main types of choroidal new vessels on fluorescein angiography.	27
Fig. (20): As moving blood cells pass through vessels, they generate changes in OCT signals. Based on this concept, a blood flow signal can be extracted by subtracting the OCT signals from the same location but at different time points (red path). The OCT signals will be different at these locations, while OCT signals from surrounding retinal tissues will remain steady (blue path) (<i>Chen et al., 2015</i>).	31
Fig. (21): Vessel density defined as the percentage area in which blood vessels are present in nine equally sized squares in a 3x3mm macula centred scan of the superficial capillaries (<i>De Carlo et al., 2015</i>).	32
Fig. (22): The location of different enface zones in relation to histology of the human retina. The four enface zones include, (i) the superficial plexus, the capillary network in ganglion cell layer and nerve fiber layer; (ii) the deep plexus, a network of capillaries in the inner	

plexiform layer with offshoot of 55 micron; (iii) the outer retina (photoreceptors), and (iv) the choriocapillaries (choroid) with offshoot of 30 microns (<i>Chalam and Sambhav, 2016</i>).....	33
Fig. (23): Graphical representation of 4 enface zone. Each enface zone is divided into inner parafoveal (13 mm) and outer perifoveal (36 mm) regions. Perfusion indices (vessel density and flow index) are obtained separately for perifoveal and parafoveal regions sparing central foveal avascular zone of 1 mm (<i>Chalam and Sambhav, 2016</i>).....	34
Fig. (24): Optical coherence tomography angiography (OCTA) of the foveal avascular zone (FAZ) obtained using inbuilt software (mm ²). (a) FAZ area in the superficial plexus of a normal subject; (b) the FAZ area obtained in the deep plexus of a normal subject (<i>Chalam and Sambhav, 2016</i>).	35
Fig. (25): OCT Angiogram Fields of View and Segmentation Layers on Angiovue. The normal left eye of a 56 year old Caucasian man using the Angiovue optical coherence tomography angiography (OCTA) software of the RTVue XR Avanti (Optovue, Inc., Fremont, CA). (A) Full-thickness (internal limiting membrane to Bruch's membrane) 3 x 3 mm OCT angiogram. (B) Full-thickness 6 x 6 mm OCT Angiogram. (C) Full-thickness 8 x 8 mm OCT Angiogram. (D) Fluorescein angiography cropped to approximately 8 x 8 mm or 30 degrees demonstrates less capillary detail than A-C. (E) 3 x 3 mm OCT angiogram of the "Superficial" inner retina. (F) 3 x 3 mm OCT angiogram of the "Deep" inner retina. (G) 3 x 3 mm OCT angiogram of the outer retina shows absence of vasculature. The white represents noise. (H) 3 x 3 mm OCT angiogram of the choriocapillaris is generally homogenous. There is black shadowing from retinal vessels. (I) En-face intensity OCT image. (J) Highly-sampled OCT b-scan image (<i>Kim et al., 2013</i>).	36
Fig. (26): 2D en face representations of the vasculature at different depths associated with four segmentation slabs. A superficial capillaries, B deep capillaries, C outer retina and D choriocapillaris (<i>De Carlo and Baomal, 2016</i>).	37
Fig. (27): OCT Angiogram Fields of View and Segmentation Layers on the SS-OCT Prototype. Normal right eye using a prototype swept source optical coherence tomography angiography (OCTA) system. (A) Full-thickness (internal limiting membrane to Bruch's membrane) 3 x 3 mm OCT angiogram. (B) Full-thickness 6 x 6 mm OCT angiogram. (C) Corresponding OCT b-scan. (D) 3 x 3 mm OCT angiogram of the retinal nerve fiber layer plexus of the inner retina. (E) 3 x 3 mm OCT	

angiogram of the ganglion cell layer plexus of the inner retina. (F) 3 x 3 mm OCT angiogram of the “deep” inner retina (<i>Choi et al., 2014</i>).....	38
Fig. (28): Typical lacy wheel versus long filamentous linear vessel in OCTA.	41
Fig. (29): Optical coherence tomography angiography (OCTA) of treated choroidal neovascularization. A 3 * 3-mm OCTA en face projection image from an 84-year-old man who was treated with 20 intravitreal anti-VEGF injections. Note the large diameter of the trunk vessels (red arrow). At the periphery there appears to be a defined anastomotic connection around the border (blue arrows) (<i>Gong et al., 2016</i>).....	41
Fig. (30): The morphological patterns of the neovascular membranes on the optical coherence tomography angiography en face projection image. The membrane was identified as sea-fan if >90% of the membrane radiated from one side of the lesion with presence of numerous tiny branching capillaries from the center to the periphery with or without arteriovenous anastomotic loops, or a peripheral arcade of small anastomotic and looping vessels (a). The membrane was identified as medusa if the vessels branched in all directions from the center of the lesion with presence of numerous tiny branching capillaries from the center to the periphery with or without arteriovenous anastomotic loops, or a peripheral arcade of small anastomotic and looping vessels (b). Membranes lacking such distinct membrane morphology but with branching small-capillary networks with or without arteriovenous anastomotic loops and the peripheral arcade of small anastomotic and looping vessels were determined to be ill-defined (c). The membrane was identified as long filamentous if the membrane had a dead-tree or pruned-vascular-tree pattern with long dilated filamentous linear vessels without branching small-capillary networks (d) (<i>Karacorlu et al., 2019</i>).....	42
Fig. (31): Well-defined lesion with a sea-fan pattern in a treatment-naive patient with active type 2 neovascularization. Fluorescein angiography image demonstrating a hyperfluorescent area representing the neovascular complex during early phase (a) and concomitant retinal leakage delineating the retinal leakage area during late phase (b). Spectral-domain optical coherence tomography horizontal line scan indicated the neovascular complex above the retinal pigment epithelium (c). The adjacent subretinal fluid leakage was demonstrated	

on the spectral -domain optical coherence tomography vertical line scan (d). Optical coherence tomography angiography en face projection image of the neovascular complex with vessels radiating from 1 side of the lesion (sea-fan). The neovascular complex could be demonstrated, both in the outer retina (e, g) and choroid (f, h) slabs (*Karacorlu et al., 2019*)..... 43

Fig. (32): Long-filamentous vessels in a 80-year-old female patient who had a history of active type 1 neovascularization treated with eight anti-VEGF injections 5 years before the optical coherence tomography angiography acquisition. At the presentation, fluorescein angiography image demonstrated an ill-defined hyperfluorescent area during early phase (a) and late phase (b). Indocyanine green angiography image revealed the neovascular complex during early (c) and late phase (d). Optical coherence tomography angiography en face projection image of long dilated filamentous linear vessels without branching small-capillary networks at the time of study evaluation (e). Spectral-domain optical coherence tomography horizontal line scan indicated the fibrovascular pigment epithelium detachment, but no subretinal or intraretinal fluid (f). Cross-sectional optical coherence tomography angiography revealed abnormal flow signal beneath the retinal pigment epithelium (g) (*Karacorlu et al., 2019*)..... 44

Fig. (33): Well-defined neovascular complex in a 69-year-old female patient who had a history of active mixed-type neovascularization treated with eight anti-VEGF injections 2 years before the optical coherence tomography angiography acquisition. At the presentation, fluorescein angiography image demonstrated a hyperfluorescent area representing the neovascular complex (a). Spectral-domain optical coherence tomography horizontal line scan indicated the neovascular complex both above and beneath the retinal pigment epithelium (b). At the time of study evaluation, the neovascular complex with vessels radiating from one side of the lesion (sea-fan) was demonstrated on the optical coherence tomography angiography en face projection image (c). Cross-sectional optical coherence tomography angiography revealed abnormal flow signal beneath the retinal pigment epithelium in the choroid slabs (d) (*Karacorlu et al., 2019*). 45

Fig. (34): Fluorescein angiography (a) shows late leakage from classical choroidal neovascularization. OCT angiography (6 × 6 mm) and (b) enhances choroidal new vessels as high-flow network

“umbrella like-shape” above retinal pigment epithelium (RPE) (<i>Mastropasqua et al., 2015</i>).	45
Fig. (35): Upper left, color photo and FFA of the right eye of a 55-year-old male with exudative AMD and classic CNV. Upper right, corresponding SS-OCT image in radial scan mode shows hyper-reflective nodular lesion located entirely above the RPE. The lesion resulted in disruption of the retinal layers and is associated with gross intra-retinal edema which indicates type II active CNV. Lower left, “en face” SS-OCTA image of the same eye taken at the level of the outer retina in a 3×3 mm field. The neovascular complex is displayed as a hyperintense signal caused by increased blood flow within the lesion. The remaining avascular outer retina generates a hypointense signal due to absent blood flow and is displayed as a dark-gray background. The lesion demonstrates homogenous network of tiny interlacing capillaries with occasional larger vessels displayed as jet-white streaks (closed arrow heads). The entire complex is surrounded by a dark lucid interval intervening between the lesion and the surrounding normal outer retina (open arrow heads) (<i>Moussa et al., 2017</i>).	46
Fig. (36): Upper left, color photo, red-free photo, and FFA of the right eye of a 51-year-old female with classic CNV on top of MFC. Upper right, corresponding SS-OCT image in line scan mode shows three hyper-reflective nodular lesions located entirely above the RPE. The sub-foveal lesion resulted in disruption of the outer retinal layers and is associated with overlying intra-retinal edema which indicates type II active CNV. Lower left, “en face” SS-OCTA image of the same eye taken at the level of the outer retina in a 3×3 mm field. The central portion of the lesion demonstrates dense arborization. More peripherally, several vascular anastomosis (closed arrow heads) and looping (open arrow head) are shown (<i>Moussa et al., 2017</i>).	47
Fig. (37): Optical Coherence Tomography Angiography of Two Eyes with Choroidal Neovascularization. Optical coherence tomography (OCT) angiograms of the (A1, B1) outer retina and (A2, B2) choriocapillaris demonstrating a choroidal neovascularization net (arrowheads) and surrounding choriocapillaris alteration (asterisk). (A3, B3) OCT B-scans showing a fibrovascular pigment epithelial detachment (<i>De Carlo and Baomal, 2016</i>).	48
Fig. (38): OCTA and FA/ICGA of CNV in Neovascular AMD. The left eye of a 67 year old Caucasian man with choroidal neovascularization (CNV) due to neovascular age-related macular degeneration using the	

Angiovue optical coherence tomography angiography (OCTA) software of the RTVue XR Avanti (Optovue, Inc., Fremont, CA). (A) 6 x 6 mm OCT angiogram segmented so both the choriocapillaris and the outer retina are shown. A circular net of abnormal vessels are shown surrounded by relatively homogenous choriocapillaris. The abnormal vessels exist both below and above Bruch's membrane (in the outer retina). (B) En-face structural OCT with a red line corresponding to the highly-sampled OCT b-scan in C. (C) 12 mm highly sampled OCT b-scan through the fovea demonstrates a large retinal pigment epithelial detachment, subretinal fluid, disruption of Bruch's membrane, and hyper-reflective material characteristic of CNV. (D) Indocyanine green angiography early, intermediate, and late frames show increasing hyper-fluorescence and pooling of dye in the CNV. (E) Fluorescein angiography intermediate and late frames show increasing hyper-fluorescence and pooling of the CNV (*De Carlo et al., 2015*)..... 49

Fig. (39): OCTA and FA of CNV in Neovascular AMD. (A) The right eye of a 63 year old Caucasian man with choroidal neovascularization (CNV) due to neovascular age-related macular degeneration (AMD) using the Angiovue optical coherence tomography angiography (OCTA) software of the RTVue XR Avanti (Optovue, Inc., Fremont, CA). (A1) 3 x 3 mm OCT angiogram segmented so both the choriocapillaris and the outer retina are shown. Two nets of abnormal vessels are shown surrounded by relatively homogenous choriocapillaris. The abnormal vessels exist both below and above Bruch's membrane (in the outer retina). (A2-3) En-face structural OCT with a red line corresponding to a 12 mm highly sampled OCT b-scan (cropped to 3 mm) through the macula. The OCT b-scan demonstrates a retinal pigment epithelial detachment (RPED), subretinal fluid, an intraretinal cyst, and hyper-reflective material characteristic of CNV. (A4-6) Fluorescein angiography (FA) early, intermediate, and late frames showing increasing hyper-fluorescence and staining of the CNV. (B) The left eye of an 89 year old Caucasian woman with CNV type three (retinal angiomatous proliferation, RAP) due to neovascular AMD using the Angiovue OCTA software of the RTVue XR Avanti (Optovue, Inc., Fremont, CA). (B1) 6 x 6 mm OCT angiogram segmented at the outer retina showing a round RAP lesion (yellow arrow). A feeder vessel from a retinal vessel was noted (not shown). (B2) Color fundus photo demonstrating hemorrhage in the region of the RAP lesion. (B3) 6 mm highly sampled OCT b-scan through the macula shows subretinal and intraretinal fluid and a round ball of hyper-

reflective tissue above a serous RPED. (B4-6) FA early, intermediate, and late frames showing increasing hyper-fluorescence and pooling in the CNV (<i>De Carlo et al., 2015</i>).	50
Fig. (40): OCTA of CNV in Neovascular AMD. (A) The left eye of an 89 year old Caucasian man with choroidal neovascularization (CNV) due to neovascular age-related macular degeneration (AMD) using the swept source optical coherence tomography angiography (OCTA) prototype (Department of Electrical Engineering and Computer Science and Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, MA). (A1) 3 x 3 mm OCT angiogram of the outer retina with manual removal of the retinal vessel ghost artifact. A sea-fan appearing CNV is seen. (A2) Corresponding OCT b-scan showing a retinal pigment epithelial detachment, disruption of Bruch's membrane, and hyper-reflective material characteristic of CNV. (B) The left eye of a 70 year old Caucasian man with treatment-naïve choroidal neovascularization (CNV) due to neovascular age-related macular degeneration (AMD) using the swept source OCTA prototype (Department of Electrical Engineering and Computer Science and Research Laboratory of Electronics, Massachusetts Institute of Technology, Cambridge, MA). (B1) 3 x 3 mm OCT angiogram of the outer retina with manual removal of the retinal vessel ghosting artifact. A sea-fan appearing CNV is seen. (B2) Red-free fundus photo exhibiting a lesion of the same shape and location as the CNV seen in B1 (<i>De Carlo et al., 2015</i>).....	51
Fig. (41): Nascent Type 3 Neovascularization in Age-Related Macular Degeneration (<i>Sacconi et al., 2018</i>).	53
Fig. (42): Comparison Between the Fluorescein Angiographic Image and the Layers Seen in Optical Coherence Tomography Angiography of the Macula. A, Fluorescein angiographic image of the central macular region. B, Optical coherence tomography angiography image of the inner retinal vascular plexus. C, Optical coherence tomography angiography image of the outer plexus. The capillaries around the foveal avascular zone are included in the segmentation of the inner layer (<i>Spaide et al., 2015</i>).	54
Fig. (43): A. This patient has several white line defects, as highlighted by the arrow. Note a displacement artifact (arrowhead) in which there is a lateral displacement of part of the image. B. The effects of ocular motion on the OCTA were largely reduced by software techniques.	

Note the distortion and loss of detail at the branch point of the vessel (arrow).	58
Fig. (44): Choroidal neovascularization is the hallmark of neovascular age-related macular degeneration. There is often thickening or elevation of the retina seen clinically through stereoscopic biomicroscopy (area within arrow heads) (A); On fluorescein angiography, neovascular membranes appear as hyperfluorescent lesions deep in the retina (arrow) that leak over time (B); Spectral-domain optical coherence tomography allows detailed cross-sectional imaging of retinal anatomy. In this patient, there was subretinal fluid (white arrow), and a small adjacent pigment epithelial detachment. Visual acuity was 20/32 (C); After 3 monthly intravitreal injections of ranibizumab, the fluid resolved, and visual acuity improved to 20/20 (D) (<i>Yonekawa et al., 2015</i>).	62
Fig. (45): Visual acuity (DECIMAL) among the studied.	75
Fig. (46): Visual acuity (DECIMAL) among the studied.	76
Fig. (47): Female patient 70 years old FFA vs OCTA showed. FFA Left: Leaking supratemporal juxtafoveal CNV encroaching foveally with surrounding macular drusen (familial dominant drusen). OCTA of left eye showed morphology of vascular network at the level of outer retina layer.	79
Fig. (48): Male patient 55 years old Left eye. OCTA: shows abnormal frond of vessels (inferior-temporal juxtafoveal) in the choriocapillaris layer, other layers are within normal	82

Abstract

Background: Neo-vascular age-related macular degeneration (nAMD) (an advanced form of macular degeneration) is the main cause of visual impairment in older adults related to AMD. WHO has estimated that approximately 8 million people will be affected by AMD by the year 2020. Optical coherence tomography angiography (OCTA) is a novel imaging modality that permits direct visualization of the retinal and choroidal vasculature in vivo. In OCTA, high-frequency and dense volumetric scanning are made to detect blood flow by analyzing the signal decorrelation between scans. Compared with stationary areas of the retina, the movement of erythrocytes within a vessel makes a decorrelated signal. Unlike traditional angiography, OCTA does not necessitate the use of exogenous dyes, so avoiding potential side effects, such as nausea or other more serious adverse events. However, the role of OCTA as a diagnostic tool has not been largely investigated. Particularly, very few clinical studies have assessed the accuracy of OCTA imaging for the diagnosis of nAMD.

Aim of the Work: To highlight the benefits of using OCT-A in the diagnosis and management of wet AMD and compare it with the conventional angiographic standard, fundus fluorescein angiography (FFA).

Subjects and Methods: An interventional prospective comparative study will be conducted on 40 eyes diagnosed with wet AMD. Optical coherence tomography angiography and FFA will be done for all eyes. Analysis of the data obtained from the OCT-A will be done and compared with the standard FFA before and after Anti-VEGF injection.

Conclusion: OCTA is a novel, non-invasive and highly sensitive tool for identifying CNV activity; aiding in treatment decisions during follow-up however, it cannot fully replace FA in the diagnosis of AMD. OCTA and FA imaging provide complementary information about pathological changes in Wet Age-Related Macular Degeneration.

Keywords: Age-related macular degeneration, Optical coherence tomography angiography, fundus fluorescein angiography.