

E.7.3 Monitoring strategies and tools for people with late age-related macular degeneration (wet active)

RQ23b: What strategies and tools are useful for monitoring for people with late AMD (wet active)?

Bibliographic reference	Coscas Gabriel J; Lupidi Marco ; Coscas Florence ; Cagini Carlo ; Souied Eric H; Optical coherence tomography angiography versus traditional multimodal imaging in assessing the activity of exudative age-related macular degeneration: A New Diagnostic Challenge. Retina 35 (11): 2219-28. 2015			
Country/ies where the study carried out	Paris, France			
Study type	Retrospective cross sectional study			
Aim of the study	To compare optical coherence tomography angiography (OCTA) with traditional multimodal imaging in patients with exudative age-related macular degeneration in terms of guiding the treatment decision.			
Study dates	Patient enrolment between November 2014 and January 2015			
Sources of funding	Not stated			
Number of patients	80 eyes (73 patients)			
Inclusion criteria	Patients were older than 50 years of age with the presence of drusen, CNV established on FA and ICGA and associated with the presence of typical OCT findings (sub/intraretinal fluid, sub-RPE fluid, or pigmented epithelium detachment (PED) and evidence of neovascular network on OCTA.			
Exclusion criteria	Patients were any associated, previous or concomitant ophthalmological condition, such as media opacities that could confound the interpretation of traditional multimodal image or OCTA			
Eligible participants characteristics	80 eyes (73 consecutive patients) were enrolled in the study. Mean age (SD): 74.1 years (8.5) No. of men: 34(46%)			
Type of test	Optical coherence tomography angiography (OCT-A)			
Reference standard	Fluorescein angiography Indocyanine green angiography (ICG) SD- Optical coherence tomography (OCT)			
Prevalence	Presence of leakage			
			Multimodal imaging	

Bibliographic reference	Coscas Gabriel J; Lupidi Marco ; Coscas Florence ; Cagini Carlo ; Souied Eric H; Optical coherence tomography angiography versus traditional multimodal imaging in assessing the activity of exudative age-related macular degeneration: A New Diagnostic Challenge. Retina 35 (11): 2219-28. 2015				
	OCT-A		Positive	Negative	Total
		Positive	56	3	59
		Negative	2	19	21
		Total	58	22	80
Sensitivity	OCT-A (multimodal imaging as reference standard): 96.6% (95%CI 90.6-99.6%)				
Specificity	OCT-A (multimodal imaging as reference standard): 86.4% (95%CI 69.6-97.0%)				
Positive predictive values	OCT-A (multimodal imaging as reference standard): 94.9% (95%CI 88.1-98.9%)				
Negative predictive values	OCT-A (multimodal imaging as reference standard): 90.5% (95%CI 75.1-98.8%)				
Comments	<p>In the traditional multimodal imaging approach, need for treatment was assessed using the presence of at least 2 of the 3 following features: The presence of leakage on FA, evidence of CNV network on ICGA, and presence of subretinal, intraretinal or sub-RPE fluid on SD-OCT</p> <p>Patient selection: a retrospective study with a selection of consecutive patients with a clinical diagnosis of exudative AMD; Index test: evaluations were performed by 2 retinal specialists who were masked to each other and independently graded the imaged obtained both from the index test and reference standards at different time points and in different orders; Reference standard: Traditional multimodal imaging were used as reference standard, including FA, ICGA and SD-OCT; Flow and timing: each patient underwent a complete bilateral clinical examination and multimodal imaging protocol including FA, ICGA and SD-OCT to establish the treatment decision; on the same day as the traditional multimodal imaging evaluation, each patient was subjected to a spectralis OCTA prototype treatment;</p>				
Bibliographic reference	Eter N ; Spaide R F; Comparison of fluorescein angiography and optical coherence tomography for patients with choroidal neovascularization after photodynamic therapy. Retina 25 (6): 691-6. 2005				
Country/ies where the study carried out	USA				

Bibliographic reference	Eter N ; Spaide R F; Comparison of fluorescein angiography and optical coherence tomography for patients with choroidal neovascularization after photodynamic therapy. Retina 25 (6): 691-6. 2005														
Study type	Retrospective, non-randomised study														
Aim of the study	To investigate retinal morphology by means of fluorescein angiography (FA) and optical coherence tomography (OCT) in patients who had undergone photodynamic therapy (PDT) with verteporfin at their 3-month-interval examination														
Study dates	Not stated														
Sources of funding	Not stated														
Number of patients	60 eyes (60 patients)														
Inclusion criteria	Patients were with predominantly classic CNV secondary to age-related macular degeneration received PDT with verteporfin according to TAP study protocol														
Exclusion criteria	Not stated														
Eligible participants characteristics	<p>60 eyes (60 patients, 30 consecutively evaluated patients) were enrolled in the study.</p> <p>PDT treatment history:</p> <table border="1"> <thead> <tr> <th>No. of PDT</th> <th>No. of participants</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>29</td> </tr> <tr> <td>2</td> <td>18</td> </tr> <tr> <td>3</td> <td>7</td> </tr> <tr> <td>4</td> <td>2</td> </tr> <tr> <td>6</td> <td>1</td> </tr> <tr> <td>9</td> <td>1</td> </tr> </tbody> </table> <p>Median age: 78 years No. of men: 31(51.7%)</p>	No. of PDT	No. of participants	1	29	2	18	3	7	4	2	6	1	9	1
No. of PDT	No. of participants														
1	29														
2	18														
3	7														
4	2														
6	1														
9	1														
Type of test	Optical coherence tomography (OCT)														
Reference standard	Fluorescein angiography (FA)														
Prevalence	Presence of leakage on FA and cystoid spaces on OCT														

Bibliographic reference	Eter N ; Spaide R F; Comparison of fluorescein angiography and optical coherence tomography for patients with choroidal neovascularization after photodynamic therapy. Retina 25 (6): 691-6. 2005			
		FA		
	OCT	Positive (leakage)	Negative (no leakage)	Total
	Positive (cystoid spaces)	40	2	42
	Negative (no cystoid spaces)	10	8	18
	Total	50	10	60
	Presence of cystoid spaces on FA and OCT			
		FA		
	OCT	Positive	Negative	Total
	Positive	20	22	42
	Negative	2	16	18
	Total	22	38	60
Sensitivity	Presence of leakage on FA and cystoid spaces on OCT, OCT (FA as reference standard): 80% (95%CI 68.0-89.9%) Presence of cystoid spaces on FA and OCT, OCT (FA as reference standard): 90.9% (95%CI 76.2-98.8%)			
Specificity	Presence of leakage on FA and cystoid spaces on OCT, OCT (FA as reference standard): 80% (95%CI 51.8-97.2%) Presence of cystoid spaces on FA and OCT, OCT (FA as reference standard): 42.1% (95%CI 27.1-57.9%)			
Positive predictive values	Presence of leakage on FA and cystoid spaces on OCT, OCT (FA as reference standard): 95.2% (95%CI 87.1-99.4%) Presence of cystoid spaces on FA and OCT, OCT (FA as reference standard): 47.6% (95%CI 32.9-62.6%)			
Negative predictive values	Presence of leakage on FA and cystoid spaces on OCT, OCT (FA as reference standard): 44.4% (95%CI 23.0-67.1%) Presence of cystoid spaces on FA and OCT, OCT (FA as reference standard): 88.9% (95%CI 71.3-98.5%)			
Comments	FA imagines were evaluated for staining of and leakage from the lesion and also for the presence of loculated fluid in cystoid spaces in the macular. OCT evaluated the presence of subretinal fluid or cystoid spaces within the retina.			

Bibliographic reference	Eter N ; Spaide R F; Comparison of fluorescein angiography and optical coherence tomography for patients with choroidal neovascularization after photodynamic therapy. Retina 25 (6): 691-6. 2005
	<p>Patient selection: a retrospective study with a selection of consecutive patients with predominantly classic CNV secondary to AMD received PDT.</p> <p>Index test: OCT images were independently reviewed in a masked fashion, but it is unclear whether OCT results were masked to results of reference standard.</p> <p>Reference standard: FA results were reviewed in a masked fashion, but it is unclear whether FA results were masked to results of OCT</p> <p>Flow and timing: Patients were examined 3 months after PDT, and had both OCT and FA, but time intervals were unclear. All patients included in the analysis.</p>
Bibliographic reference	Giani A ; Luiselli C ; Esmaili D D; Salvetti P ; Cigada M ; Miller J W; Staurenghi G ; Spectral-domain optical coherence tomography as an indicator of fluorescein angiography leakage from choroidal neovascularization. Investigative Ophthalmology & Visual Science 52(8): 5579-86. 2011
Country/ies where the study carried out	Milan, Italy
Study type	Retrospective cross sectional study
Aim of the study	To evaluate spectral-domain optical coherence tomography (SD-OCT) findings that predict angiographic leakage in choroidal neovascularization (CNV)
Study dates	Not stated
Sources of funding	Not stated
Number of patients	93 eyes (93 patients) with CNV from neovascular AMD
Inclusion criteria	Clinical history of AMD and FA diagnosis of subfoveal CNV, FA and SD-OCT were performed; Previous treatment with anti-VEGF (ranibizumab or bevacizumab) for CNV FA and SD-OCT acquired 1 month after any anti-VEGF agent injection, and every 3 months thereafter
Exclusion criteria	Previous laser treatment, photodynamic therapy, or vitreoretinal surgery on the study eye; significant macular haemorrhage that obscured the lesion, and a spherical refractive error >6diopters.

Bibliographic reference	Giani A ; Luiselli C ; Esmaili D D; Salvetti P ; Cigada M ; Miller J W; Staurenghi G ; Spectral-domain optical coherence tomography as an indicator of fluorescein angiography leakage from choroidal neovascularization. Investigative Ophthalmology & Visual Science 52(8): 5579-86. 2011			
Eligible participants characteristics	93 eyes (93 patients) were enrolled in the study. Mean age (SD): 77.0 years (11.4) No. of men: 41(44.1%) Mean no. of anti-VEFG (SD): 6.7 (3.5)			
Type of test	SD-Optical coherence tomography (OCT)			
Reference standard	Fluorescein angiography (FA)			
Prevalence	Parameter: fluid (associated with FA presence of leakage)			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	49	30	79
	Negative	3	11	14
	Total	52	41	93
	Parameter: PED (pigment epithelium detachment)			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	20	13	33
	Negative	32	28	60
	Total	52	41	93
	Parameter: NSD (neurosensory retinal detachment)			
		FA leakage		
OCT		Positive	Negative	Total

Bibliographic reference	Giani A ; Luiselli C ; Esmaili D D; Salvetti P ; Cigada M ; Miller J W; Staurenghi G ; Spectral-domain optical coherence tomography as an indicator of fluorescein angiography leakage from choroidal neovascularization. Investigative Ophthalmology & Visual Science 52(8): 5579-86. 2011			
	Positive	35	5	40
	Negative	17	36	53
	Total	52	41	93
	Parameter: ICS (intraretinal cystic spaces)			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	27	23	50
	Negative	25	18	43
	Total	52	41	93
	Parameter: Flecks			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	42	7	49
	Negative	10	34	44
	Total	52	41	93
Sensitivity		Sensitivity (95%CI)		
	Fluid	94.2% (86.5-98.8%)		
	Pigment epithelium detachment (PED)	38.5% (25.8-51.9%)		
	Neurosensory retinal detachment (NSD)	67.3% (54.1-79.2%)		
	Intraretinal cystic spaces (ICS)	51.9% (38.5-65.2%)		

Bibliographic reference	Giani A ; Luiselli C ; Esmaili D D; Salvetti P ; Cigada M ; Miller J W; Staurenghi G ; Spectral-domain optical coherence tomography as an indicator of fluorescein angiography leakage from choroidal neovascularization. Investigative Ophthalmology & Visual Science 52(8): 5579-86. 2011	
	Flecks	80.8% (69.1-90.2%)
Specificity		Specificity (95%CI)
	Fluid	26.8% (14.6-41.2%)
	Pigment epithelium detachment (PED)	68.3% (53.5-81.4%)
	Neurosensory retinal detachment (NDS)	87.8% (76.3-95.8%)
	Intraretinal cystic spaces (ICS)	43.9% (29.3-59.1%)
	Flecks	82.9% (70.2-92.7%)
Positive predictive values		PPV (95%CI)
	Fluid	62.0% (51.1-72.3%)
	Pigment epithelium detachment (PED)	60.6% (43.7-76.3%)
	Neurosensory retinal detachment (NDS)	87.6% (75.8-95.7%)
	Intraretinal cystic spaces (ICS)	54.0% (40.2-67.5%)
	Flecks	85.7% (74.8-93.9%)
Negative predictive values		NPV (95%CI)
	Fluid	78.6% (54.6-95.0%)
	Pigment epithelium detachment (PED)	46.7% (34.3-59.2%)
	Neurosensory retinal detachment (NDS)	67.9% (54.9-79.7%)
	Intraretinal cystic spaces (ICS)	41.9% (27.7-56.7%)
	Flecks	77.3% (64.0-88.2%)

Bibliographic reference	Giani A ; Luiselli C ; Esmaili D D; Salvetti P ; Cigada M ; Miller J W; Staurenghi G ; Spectral-domain optical coherence tomography as an indicator of fluorescein angiography leakage from choroidal neovascularization. Investigative Ophthalmology & Visual Science 52(8): 5579-86. 2011
Comments	<p>The study examined specific patterns of fluid accumulation, which can affect the specificity of SD-OCT evaluation with regard to having an FA leakage, including PED, NSD, ICS, and flecks.</p> <p>Fluid was considered present if NSD, PED, or ICS were presented.</p> <p>Patient selection: a retrospective study with a selection of consecutive patients with CNV secondary to AMD from neovascular AMD. Patients had previous laser treatment, PDT or vitreoretinal surgery on the study eye were excluded.</p> <p>Index test: Examiner were masked from all other patient data including FA images when evaluating SD-OCT.</p> <p>Reference standard: Examiner were masked from all other patient data including SD-OCT images when evaluating FA.</p> <p>Flow and timing: All SD-OCT and FA were routinely acquired 1 month after any anti-VEGD injection, and every 3 months thereafter, but time intervals were unclear. All patients included in the analysis.</p>

Bibliographic reference	Henschel A ; Spital G ; Lommatzsch A ; Pauleikhoff D ; Optical coherence tomography in neovascular age related macular degeneration compared to fluorescein angiography and visual acuity. European Journal of Ophthalmology 19(5): 831-5. 2009.
Country/ies where the study carried out	Germany
Study type	Prospective cross sectional study
Aim of the study	To assess the sensitivity and specificity of optical coherence tomography (OCT) for monitoring patients with choroidal neovascularization (CNV) after photodynamic therapy (PDT) in comparison to fluorescein angiography (FA).
Study dates	Not stated
Sources of funding	Not stated
Number of patients	14 patients
Inclusion criteria	Patients with different types of CNV
Exclusion criteria	Not stated

Bibliographic reference	Henschel A ; Spital G ; Lommatzsch A ; Pauleikhoff D ; Optical coherence tomography in neovascular age related macular degeneration compared to fluorescein angiography and visual acuity. European Journal of Ophthalmology 19(5): 831-5. 2009.			
Eligible participants characteristics	14 patients. Of 13 patients, OCT and FA were carried out prior to PDT and at 2,6, and 12 weeks after treatment. One patient only completed the 6 week visit. Mean follow-up time per patient was 14.1 weeks			
Type of test	Optical coherence tomography (OCT)			
Reference standard	Fluorescein angiography (FA)			
Prevalence	Parameter: intraretinal fluid			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	28	18	46
	Negative	3	12	15
	Total	31	30	61
	Parameter: subretinal fluid			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	22	8	30
	Negative	9	22	31
	Total	31	30	61
	Parameter: intraretinal or subretinal fluid			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	30	19	49

Bibliographic reference		Henschel A ; Spital G ; Lommatzsch A ; Pauleikhoff D ; Optical coherence tomography in neovascular age related macular degeneration compared to fluorescein angiography and visual acuity. European Journal of Ophthalmology 19(5): 831-5. 2009.		
	Negative	1	11	12
	Total	31	30	61
Sensitivity		Sensitivity (95%CI)		
	Intraretinal fluid	90.3% (77.9-97.9%)		
	Subretinal fluid	71.0% (54.1-85.3%)		
	Intraretinal or subretinal fluid	96.8% (88.4-99.9%)		
Specificity		Specificity (95%CI)		
	Intraretinal fluid	40.0% (23.5-57.7%)		
	Subretinal fluid	73.3% (56.5-87.3%)		
	Intraretinal or subretinal fluid	36.7% (20.7-54.3%)		
Positive predictive values		PPV (95%CI)		
	Intraretinal fluid	60.9% (46.5-74.3%)		
	Subretinal fluid	73.3% (56.5-87.3%)		
	Intraretinal or subretinal fluid	61.2% (47.4-74.2%)		
Negative predictive values		NPV (95%CI)		
	Intraretinal fluid	80.0% (57.2-95.3%)		
	Subretinal fluid	71.0% (54.1-85.3%)		
	Intraretinal or subretinal fluid	91.7% (71.5-99.8%)		
Comments	<p>In FA, leakage was rated as positive if extravasation of the dye was visible outside the initial lesion boundaries 3 minutes after dye injection.</p> <p>All OCT were assessed for presence or absence of intraretinal or subretinal fluid. Intraretinal fluid was considered to be present if loculated hyporeflective cystoid spaces were visible in one of the acquired OCT. Subretinal fluid was rated as present if a hyporeflective space was definable between the outer retinal surface and the hyperreflective retinal pigment epithelium/choriocapillary complex in one of the OCT scans.</p>			

Bibliographic reference	Henschel A ; Spital G ; Lommatzsch A ; Pauleikhoff D ; Optical coherence tomography in neovascular age related macular degeneration compared to fluorescein angiography and visual acuity. European Journal of Ophthalmology 19(5): 831-5. 2009.
	<p>A total of 14 patients with CNV. 13 patients had OCT and FA prior to PDT and at 2,6 and 12 weeks after treatment. One patient only completed the 6-week visit. In 3 patients images could be obtained at 24 weeks after treatment additionally.</p> <p>Patient selection: a prospective study with a selection of patients with CNV (n=14). In 13 patients, OCT and FA were carried out prior to PDT and at 2, 6, and 12 weeks after treatment. Once patient only completed the 6-week visit. In 3 patients, images could be obtained at 24 weeks after treatment additionally.</p> <p>Index test: All acquired OCT were assessed for the presences or absence of intraretinal or subretinal fluid. Images were reviewed in masked fashion.</p> <p>Reference standard: In FA, leakage was rated as positive if extravasation of the dye was visible outside the initial lesion boundaries 3 minutes after dye injection. All acquired images were reviewed in a masked fashion. Leakage activities on FA was defined as the gold standard.</p> <p>Flow and timing: time intervals were unclear. All patients included in the analysis, but results were not presented at different time points of study follow-up.</p>
Bibliographic reference	Khurana R N; Dupas B ; Bressler N M; Agreement of time-domain and spectral-domain optical coherence tomography with fluorescein leakage from choroidal neovascularization. Ophthalmology 117(7): 1376-80. 2010.
Country/ies where the study carried out	USA
Study type	Retrospective consecutive case series study
Aim of the study	To compare fluorescein leakage from choroidal neovascularization (CNV) with signs of intraretinal or subretinal fluid on time-domain optical coherence tomography (TD-OCT) and spectral-domain optical coherence tomography (SD-OCT) in patients receiving anti-vascular endothelial growth factor (anti-VEGF) therapy for CNV caused by age-related macular degeneration (AMD).
Study dates	All patients with CNV secondary to AMD who were imaged on the same day with FA and TD-OCT and SD-OCT over an 8-month period (November 2007 to June 2008) were reviewed.
Sources of funding	Ronald G Michels Foundation; Foundation Odette et Jean Duranton de Magny, Fondation de France; James P Gills Professionorship and a Wilmer Retina Division Research Fund.

Bibliographic reference	Khurana R N; Dupas B ; Bressler N M; Agreement of time-domain and spectral-domain optical coherence tomography with fluorescein leakage from choroidal neovascularization. Ophthalmology 117(7): 1376-80. 2010.			
Number of patients	93 eyes (93 patients) with CNV from neovascular AMD			
Inclusion criteria	All patients with CNV secondary to AMD who were imaged on the same day with FA and TD-OCT and SD-OCT			
Exclusion criteria	Not stated			
Eligible participants characteristics	59 eyes (56 patients) were enrolled in the study. Mean age (SD): 78.0 years (7.8) Median no. of previous anti-VEFG (SD): 4			
Type of test	Optical coherence tomography (OCT) (both TD-OCT and SD-OCT)			
Reference standard	Fluorescein angiography (FA)			
Prevalence	Parameter: interstitial fluid			
		FA leakage		
TD-OCT		Positive	Negative	Total
	Positive	11	8	19
	Negative	18	22	40
	Total	29	30	59
SD-OCT	Positive	19	11	30
	Negative	10	19	29
	Total	29	30	59
	Parameter: retinal cystoid abnormalities			
		FA leakage		
TD-OCT		Positive	Negative	Total
	Positive	10	8	18
	Negative	19	22	41
	Total	29	30	59

Bibliographic reference	Khurana R N; Dupas B ; Bressler N M; Agreement of time-domain and spectral-domain optical coherence tomography with fluorescein leakage from choroidal neovascularization. <i>Ophthalmology</i> 117(7): 1376-80. 2010.				
	SD-OCT	Positive	17	13	30
		Negative	12	17	29
		Total	29	30	59
	Parameter: subretinal fluid				
			FA leakage		
	TD-OCT		Positive	Negative	Total
		Positive	14	5	19
		Negative	15	25	40
		Total	29	30	59
	SD-OCT	Positive	20	7	27
		Negative	9	23	32
		Total	29	30	59
	Parameter: interstitial fluid, cystoid abnormalities or subretinal fluid				
			FA leakage		
	TD-OCT		Positive	Negative	Total
		Positive	17	11	28
		Negative	12	19	31
		Total	29	30	59
	SD-OCT	Positive	26	16	42
		Negative	3	14	17
		Total	29	30	59
Sensitivity	TD-OCT (vs FA)				
		Sensitivity (95%CI)			

Bibliographic reference	Khurana R N; Dupas B ; Bressler N M; Agreement of time-domain and spectral-domain optical coherence tomography with fluorescein leakage from choroidal neovascularization. <i>Ophthalmology</i> 117(7): 1376-80. 2010.	
	interstitial fluid	37.9% (21.5-55.9%)
	retinal cystoid abnormalities	34.5% (18.6-52.4%)
	subretinal fluid	48.3% (30.6-66.1%)
	interstitial fluid, cystoid abnormalities or subretinal fluid	58.6% (40.6-75.5%)
	SD-OCT (vs FA)	
		Sensitivity (95%CI)
	interstitial fluid	65.5% (47.6-81.4%)
	retinal cystoid abnormalities	58.6% (40.6-75.5%)
	subretinal fluid	69.0% (51.3-84.1%)
		PPV (95%CI)
Specificity	TD-OCT (vs FA)	
		Specificity (95%CI)
	interstitial fluid	73.3% (56.5-87.3%)
	retinal cystoid abnormalities	73.3% (56.5-87.3%)
	subretinal fluid	83.3% (68.3-94.2%)
	interstitial fluid, cystoid abnormalities or subretinal fluid	63.3% (45.7-79.3%)
	SD-OCT	
		Specificity (95%CI)
	interstitial fluid	63.3% (45.7-79.3%)
	retinal cystoid abnormalities	56.7% (38.9-73.6%)
	subretinal fluid	76.7% (60.3-89.7%)

Bibliographic reference	Khurana R N; Dupas B ; Bressler N M; Agreement of time-domain and spectral-domain optical coherence tomography with fluorescein leakage from choroidal neovascularization. <i>Ophthalmology</i> 117(7): 1376-80. 2010.	
	interstitial fluid, cystoid abnormalities or subretinal fluid	46.7% (29.4-64.3%)
Positive predictive values	TD-OCT	
	interstitial fluid	57.9% (35.7-78.5%)
	retinal cystoid abnormalities	55.6% (32.9-77.0%)
	subretinal fluid	73.7% (52.4-90.3%)
	interstitial fluid, cystoid abnormalities or subretinal fluid	60.7% (42.4-77.6%)
	SD-OCT	
		PPV (95%CI)
	interstitial fluid	63.3% (45.7-79.3%)
	retinal cystoid abnormalities	56.7% (38.9-73.6%)
	subretinal fluid	74.1 (56.4-88.4%)
interstitial fluid, cystoid abnormalities or subretinal fluid	61.9% (46.9-75.8%)	
Negative predictive values	TD-OCT	
		NPV (95%CI)
	interstitial fluid	55.0% (39.6-69.9%)
	retinal cystoid abnormalities	53.7% (38.5-68.5%)
	subretinal fluid	62.5% (47.2-76.6%)
	interstitial fluid, cystoid abnormalities or subretinal fluid	61.3% (43.9-77.3%)
	SD-OCT	

Bibliographic reference	Khurana R N; Dupas B ; Bressler N M; Agreement of time-domain and spectral-domain optical coherence tomography with fluorescein leakage from choroidal neovascularization. Ophthalmology 117(7): 1376-80. 2010.	
		NPV (95%CI)
	interstitial fluid	65.5% (47.6-81.4%)
	retinal cystoid abnormalities	58.6% (40.6-75.5%)
	subretinal fluid	71.9% (55.4-85.8%)
	interstitial fluid, cystoid abnormalities or subretinal fluid	82.4% (61.7-96.0%)
COmments	<p>OCT abnormalities were defined as the presences of interstitial fluid, retinal cystoid abnormalities, or subretinal fluid.</p> <p>Patient selection: a retrospective study reviewing the records of all patients with CNV who were imaged on the same day with FA, TD-OCT and SD-OCT.</p> <p>Index test: All images were analysed by a trained grader but it was unclear whether the interpretation of results were masked to results of reference standard.</p> <p>Reference standard: All images were analysed by a trained grader but it was unclear whether the interpretation of results were masked to results of index test.</p> <p>Flow and timing: inclusion of participants had images on the same day. All participants included in the analysis.</p>	

Bibliographic reference	Salinas-Alaman A ; Garcia-Layana A ; Maldonado M J; Sainz-Gomez C ; Alvarez-Vidal A ; Using optical coherence tomography to monitor photodynamic therapy in age related macular degeneration. American Journal of Ophthalmology 140 (1): 23-8. 2005.	
Country/ies where the study carried out	Spain	
Study type	Prospective observational case study	
Aim of the study	To evaluate the role of optical coherence tomography (OCT) in determining choroidal neovascularization (CNV) activity before and after photodynamic therapy (PDT) in patients with age-related macular degeneration (ARMD).	
Study dates	Not stated	
Sources of funding	Not stated	

Bibliographic reference	Salinas-Alaman A ; Garcia-Layana A ; Maldonado M J; Sainz-Gomez C ; Alvarez-Vidal A ; Using optical coherence tomography to monitor photodynamic therapy in age related macular degeneration. American Journal of Ophthalmology 140 (1): 23-8. 2005.			
Number of patients	62 eyes (53 consecutive patients)			
Inclusion criteria	All patients with exudative AMD with predominantly classic CNV			
Exclusion criteria	Not stated			
Eligible participants characteristics	53 patients were included in the study. Mean age (SD): 76.5 years (7.5) Mean no. of PDT treatment: 2.5 (SD 1.2) followed for 6 months; 2.9 (SD 1.1) followed for 12 months			
Type of test	Optical coherence tomography (OCT)			
Reference standard	Fluorescein angiography (FA)			
Prevalence	Parameter: interstitial fluid or subretinal fluid			
		FA leakage		
	OCT	Positive	Negative	Total
		Positive	25	135
		Negative	36	41
		Total	61	176
Sensitivity	Presence of leakage on FA and intraretinal or subretinal fluid on OCT, OCT (FA as reference standard): 95.7% (95%CI 91.7-98.6%)			
Specificity	Presence of leakage on FA and intraretinal or subretinal fluid on OCT, OCT (FA as reference standard): 59.0% (95%CI 46.5-70.9%)			
Positive predictive values	Presence of leakage on FA and intraretinal or subretinal fluid on OCT, OCT (FA as reference standard): 81.5% (95%CI 74.5-87.5%)			
Negative predictive values	Presence of leakage on FA and intraretinal or subretinal fluid on OCT, OCT (FA as reference standard): 87.8% (95%CI 76.3-95.8%)			

Bibliographic reference	Salinas-Alaman A ; Garcia-Layana A ; Maldonado M J; Sainz-Gomez C ; Alvarez-Vidal A ; Using optical coherence tomography to monitor photodynamic therapy in age related macular degeneration. American Journal of Ophthalmology 140 (1): 23-8. 2005.
Comments	<p>A total of 62 eyes included in the study. After the treatment, 42 eyes were reviewed every 3 months for 12 months (n=168 pair of OCT and FA), and the other 20 eye were reviewed 3-monthly for 6 months (n=40 pairs of OCT and FA). Therefore, by the end of 12 month follow-up, there were a total of 208 sets of FA and OCT were expected, 176 were obtained.</p> <p>Patient selection: a prospective study with a selection of consecutive patients with exudative AMD with predominantly classic CNV.</p> <p>Index test: experienced technician performed OCT examinations, another independent observer who was masked to the patient status evaluated the OCT on each occasion, but it was unclear whether the results of OCT were masked to results of FA.</p> <p>Reference standard: Two independent observers determined the presence or absence of leakage on FA in each case, but it was unclear whether results were masked to OCT results.</p> <p>Flow and timing: Time intervals of OCT and FA were unclear. Sets of OCT and FA results were included but sets of OCT and FA results were not presented at different time points of study follow-up.</p>
Bibliographic reference	Van de Moere ; A ; Sandhu S S; Talks S J; Correlation of optical coherence tomography and fundus fluorescein angiography following photodynamic therapy for choroidal neovascular membranes. British Journal of Ophthalmology 90 (3): 304-6. 2006
Country/ies where the study carried out	UK
Study type	Retrospective comparative observational case series
Aim of the study	To assess the correlation between optical coherence tomography (OCT) and leakage on fundus fluorescein angiography (FFA) following photodynamic therapy (PDT) with verteporfin for choroidal neovascularisation (CNV)
Study dates	A review of patients who had received initial PDT with verteporfin between July 2001 and October 2004
Sources of funding	Not stated
Number of patients	121 eyes
Inclusion criteria	All patients who had received initial PDT with verteporfin for a classic or predominantly subfoveal CNV secondary to AMD, to allow at least 3 months of follow-up

Bibliographic reference	Van de Moere ; A ; Sandhu S S; Talks S J; Correlation of optical coherence tomography and fundus fluorescein angiography following photodynamic therapy for choroidal neovascular membranes. British Journal of Ophthalmology 90 (3): 304-6. 2006			
Exclusion criteria	Not stated			
Eligible participants characteristics	121 eyes were included in the study. No. of female: 66 (51.2%) Mean age (range): 73.9years (30-94)			
Type of test	Optical coherence tomography (OCT)			
Reference standard	Fluorescein angiography (FA)			
Prevalence	Parameter: pigment epithelial detachment			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	4	0	4
	Negative	66	51	117
	Total	70	51	121
	Parameter: subretinal fluid			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	33	8	41
	Negative	37	43	80
	Total	70	51	121
	Parameter: intraretinal fluid			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	58	24	82

Bibliographic reference	Van de Moere ; A ; Sandhu S S; Talks S J; Correlation of optical coherence tomography and fundus fluorescein angiography following photodynamic therapy for choroidal neovascular membranes. British Journal of Ophthalmology 90 (3): 304-6. 2006			
	Negative	11	27	39
	Total	70	51	121
Parameter: gross cystoid macular oedema				
		FA leakage		
OCT		Positive	Negative	Total
	Positive	16	1	17
	Negative	54	50	104
	Total	70	51	121
Parameter: sponge-like retinal thickening				
		FA leakage		
OCT		Positive	Negative	Total
	Positive	33	10	43
	Negative	37	41	78
	Total	70	51	121
Parameter: solitary foveal cyst				
		FA leakage		
OCT		Positive	Negative	Total
	Positive	9	13	22
	Negative	61	38	99
	Total	70	51	121

Bibliographic reference	Van de Moere ; A ; Sandhu S S; Talks S J; Correlation of optical coherence tomography and fundus fluorescein angiography following photodynamic therapy for choroidal neovascular membranes. British Journal of Ophthalmology 90 (3): 304-6. 2006			
	Parameter: absence of foveal depression			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	38	18	56
	Negative	32	33	65
	Total	70	51	121
	Parameter: retinal thickness>350µm			
		FA leakage		
OCT		Positive	Negative	Total
	Positive	44	9	53
	Negative	26	42	68
	Total	70	51	121
Sensitivity		Sensitivity (95%CI)		
	Subretinal fluid	47.1% (35.6-58.8%)		
	Intraretinal fluid	82.9% (73.3-90.7%)		
	Gross cystoid macular oedema	22.9% (13.9-33.3%)		
	Sponge-like retinal thickening	47.1% (35.6-58.8%)		
	Solitary foveal cyst	12.9% (6.0-21.6%)		
	Retinal thickness>350µm	62.9% (51.3-73.7%)		
	Absence of foveal depression	54.3% (42.6-65.7%)		
Specificity		Specificity (95%CI)		
	Subretinal fluid	84.3% (73.3-92.8%)		

Bibliographic reference		
Van de Moere ; A ; Sandhu S S; Talks S J; Correlation of optical coherence tomography and fundus fluorescein angiography following photodynamic therapy for choroidal neovascular membranes. British Journal of Ophthalmology 90 (3): 304-6. 2006		
	Intraretinal fluid	52.9% (39.3-66.3%)
	Gross cystoid macular oedema	98.0% (92.9-99.9%)
	Sponge-like retinal thickening	80.4% (68.6-90.0%)
	Solitary foveal cyst	74.5% (61.8-85.4%)
	Retinal thickness>350µm	82.4% (70.9-91.4%)
	Absence of foveal depression	64.7% (51.2-77.1%)
Positive predictive values		Positive predictive value(95%CI)
	Subretinal fluid	80.5% (62.7-90.9%)
	Intraretinal fluid	70.7% (60.5-80.0%)
	Gross cystoid macular oedema	94.1% (79.4-99.8%)
	Sponge-like retinal thickening	76.7% (63.2-87.9%)
	Solitary foveal cyst	40.9% (21.8-61.6%)
	Retinal thickness>350µm	83.0% (71.9-91.8%)
	Absence of foveal depression	67.9% (55.2-79.3%)
Negative predictive values		Negative predictive value(95%CI)
	Subretinal fluid	53.8% (42.8-64.5%)
	Intraretinal fluid	69.2% (54.1-82.5%)
	Gross cystoid macular oedema	48.1% (38.6-57.6%)
	Sponge-like retinal thickening	52.6% (41.5-63.5%)
	Solitary foveal cyst	38.4% (29.1-48.1%)
	Retinal thickness>350µm	61.8% (50.0-72.9%)
	Absence of foveal depression	50.8% (38.7-62.8%)
Comments	Patient selection: a retrospective study with a selection of patients who all had received PDT for a classic or predominantly classic subfoveal CNV secondary to AMD.	

Bibliographic reference	Van de Moere ; A ; Sandhu S S; Talks S J; Correlation of optical coherence tomography and fundus fluorescein angiography following photodynamic therapy for choroidal neovascular membranes. British Journal of Ophthalmology 90 (3): 304-6. 2006
	<p>Index test: The accredited ophthalmic photographer performed OCT. Each OCT image was evaluated independently by one of investigators, who were masked to the treatment course, number of treatment, and whether treatment was given or not at that visit. It was unclear whether results of OCT were masked to FA results.</p> <p>Reference standard: The same accredited ophthalmic photographer performed FFA. Each FFA image was evaluated independently by one of investigators, who were masked to the treatment course, number of treatment, and whether treatment was given or not at that visit. It was unclear whether results of OCT were masked to FA results. (different investigators evaluated FFA and OCT)</p> <p>Flow and timing: The OCT and FA from the same visit were analysed. All patients included in the analysis.</p>

Bibliographic reference	van Velthoven ; M E ; de Smet ; M D ; Schlingemann R O; Magnani M ; Verbraak F D; Added value of OCT in evaluating the presence of leakage in patients with age-related macular degeneration treated with PDT. Graefes Archive for Clinical & Experimental Ophthalmology 244 (9): 1119-23. 2006.
Country/ies where the study carried out	Amsterdam, Netherlands
Study type	Prospective observational case series
Aim of the study	To evaluate the presence of leakage on fluorescein angiography (FA) in patients with age-related macular degeneration (AMD) retreated with photodynamic therapy (PDT) can be difficult. New diagnostic tools such as optical coherence tomography (OCT) might help to optimize PDT management.
Study dates	Patient recruitment between July and October 2003
Sources of funding	There was no financial support for this study
Number of patients	30 eyes (30 consecutive patients)
Inclusion criteria	All patients who had received at least one prior PDT treatment, and were scheduled for their regular 3-monthly FA.
Exclusion criteria	Not stated
Eligible participants characteristics	<p>30 patients were included in the study.</p> <p>Mean age (MD): 75.5years (9.0)</p> <p>No. of prior PDT treatment range from 1 to 12 (median 2.5)</p>

Bibliographic reference	van Velthoven ; M E ; de Smet ; M D ; Schlingemann R O; Magnani M ; Verbraak F D; Added value of OCT in evaluating the presence of leakage in patients with age-related macular degeneration treated with PDT. Graefes Archive for Clinical & Experimental Ophthalmology 244 (9): 1119-23. 2006.			
Type of test	Time domain optical coherence tomography (OCT) (stratus OCT)			
Reference standard	Fluorescein angiography (FA)			
Prevalence	Parameter: leakage			
		FA leakage		
	OCT	Positive	Negative	Total
	Positive	15	4	19
	Negative	8	3	11
	Total	23	7	30
Sensitivity	OCT (FA as reference standard): 65.2% (95%CI 45.1-82.8%)			
Specificity	OCT (FA as reference standard): 42.9% (95%CI 11.8-77.7%)			
Positive predictive values	OCT (FA as reference standard): 78.9% (95%CI 58.6-93.6%)			
Negative predictive values	OCT (FA as reference standard): 27.3% (95%CI 6.7-55.6%)			
Comments	<p>Patient selection: a prospective study with a selection of consecutive patients with AMD and subfoveal CNV who had received at least one prior PDT treatment and were scheduled for regular 3-monthly FA.</p> <p>Index test: The OCT from all patients were evaluated by two different investigator for the presence of signs of leakage but it was unclear whether OCT results were masked to FA results.</p> <p>Reference standard: The FA results were evaluated by two experienced investigator independently for the presence of signs of leakage, and the observers were masked for any relevant clinical data such as VA, number of prior treatment or previous FAs but it was unclear whether FA results were masked to OCT results.</p> <p>Flow and timing: All patients had their regular 3-monthly FA, and were also had OCT but time intervals were unclear. All patients were included in the analysis.</p>			