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Commercial Relationships Disclosure (Abstract): Ricardo Louzada: Commercial Relationship: Code N (No Commercial Relationship) | Eduardo Novais: Commercial Relationship: Code N (No Commercial Relationship) | Mehreen Adhi: Commercial Relationship: Code N (No Commercial Relationship) | Emily Cole: Commercial Relationship: Code N (No Commercial Relationship) | Eric Moult: Commercial Relationship: Code N (No Commercial Relationship) | Lennart Husvogt: Commercial Relationship: Code N (No Commercial Relationship) | Andre Witkin: Commercial Relationship: Code N (No Commercial Relationship) | Caroline Baumal: Commercial Relationship(s);Optovue:Code R (Recipient) ;Allergan:Code S (Non-remunerative) | James Fujimoto: Commercial Relationship(s);Royalties from intellectual property owned by the Massachusetts Institute of Technology and licensed to Carl Zeiss Meditec Inc., :Code C (Consultant) ;Optovue Inc:Code C (Consultant) ;Stock options Optovue Inc:Code C (Consultant) | Jay Duker: Commercial Relationship(s);Alcon/Novartis:Code C (Consultant) ;Allergan:Code C (Consultant) ;CoDa Therapeutics:Code C (Consultant) ;Lumenis:Code C (Consultant) ;Omeros:Code C (Consultant) ;Thrombogenics:Code C (Consultant) ;Carl Zeiss Meditech:Code C (Consultant) ;Optovue:Code C (Consultant) ;Eleven Biotherapeutics:Code S (Non-remunerative) | Nadia Waheed: Commercial Relationship(s);Iconic therapeutics:Code C (Consultant) ;Thrombogenics:Code S (Non-remunerative) ;Carl Zeiss Meditec:Code F (Financial Support) ;OptoVue:Code S (Non-remunerative)

Study Group:

ABSTRACT

TITLE: Choroidal Neovascularization Analyzed on Ultra-High Speed Swept Source Optical Coherence Tomography Angiography Compared to Spectral Domain Optical Coherence Tomography Angiography

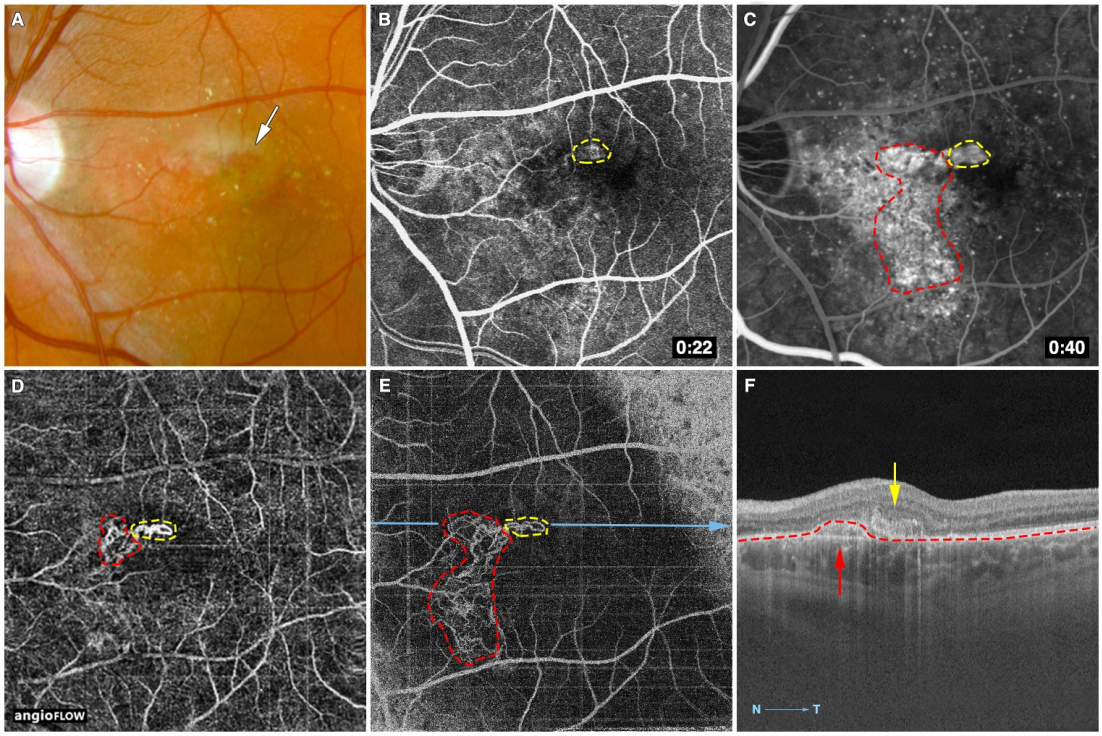
ABSTRACT BODY:

Purpose: Cross-sectional, observational study to compare visualization of choroidal neovascularization (CNV) secondary to age-related macular degeneration (AMD) using an ultra-high speed swept-source (SS)-optical coherence tomography angiography (OCTA) prototype versus a spectral-domain (SD)-OCTA device.

Methods: Patients were imaged on SD-OCT and SS-OCT devices on the same day. The SD-OCT device employed is the RTVue Avanti that operates at ~840nm wavelength and 70,000 A-scans/second. The SS-OCT device used is an ultra-high speed long-wavelength prototype that operates at ~1050nm wavelength and 400,000 A-scans/second. Two observers independently measured the CNV area on OCTA *en face* images from the two devices using ImageJ. The non-parametric Wilcoxon signed-rank test was used to compare area measurements.

Results: Fourteen eyes from 13 patients were enrolled. The CNV in 11 eyes (78.6%) were classified as type-1, 2 eyes (14.3%) as type-2, and 1 eye (7.1%) as mixed type. The mean CNV areas measured using SS-OCT and SD-OCT 3mm x 3mm OCTA were 0.949 ± 1.168mm^2 and 0.340 ± 0.301mm^2, respectively (*p=0.001*). For the 6mm x 6mm OCTA the CNV areas using SS-OCT and SD-OCT were 1.218 ± 1.284mm^2 and 0.604 ± 0.597mm^2, respectively (*p=0.0019*). The field of view did not significantly affect the measured CNV area (*p=0.19* and *p=0.18* for SS-OCT and SD-OCT respectively).

Conclusions: SS-OCTA measurements yielded significantly larger CNV areas than SD-OCTA. It is possible that SS-OCTA is better able to demarcate the full extent of CNV vasculature.



Multimodal imaging of a left eye with mixed type 1 and type 2 choroidal neovascularization. (A) Color fundus. Retinal pigment epithelium (RPE) clumps and mottling, and subretinal hemorrhage (white arrow) surrounded by hypocromic area and drusen.; (B) and (C) Fluorescein angiography at different stages. Red dashed-line representing the occult component; yellow dashed-line representing the classic component.; (D) Spectral-domain optical coherence tomography angiography (OCTA) image and; (E) Swept-source OCTA image. Red dashed-line representing the type 1 component; yellow dashed-line representing the type 2 component.; (F) Corresponding OCT B-scan. RPE represented as red dashed-line. Type 1 component (red arrow) and type 2 component (yellow arrow).

DETAILS

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TRAVEL GRANTS and AWARDS APPLICATIONS

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