

**AUTHORS**

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**Study Group:** (none)

**ABSTRACT**

**TITLE:** Variable Interscan Time Analysis (VISTA-) Optical Coherence Tomography Angiography (OCTA) of Blood Flow Speeds in Eyes with Diabetic Retinopathy

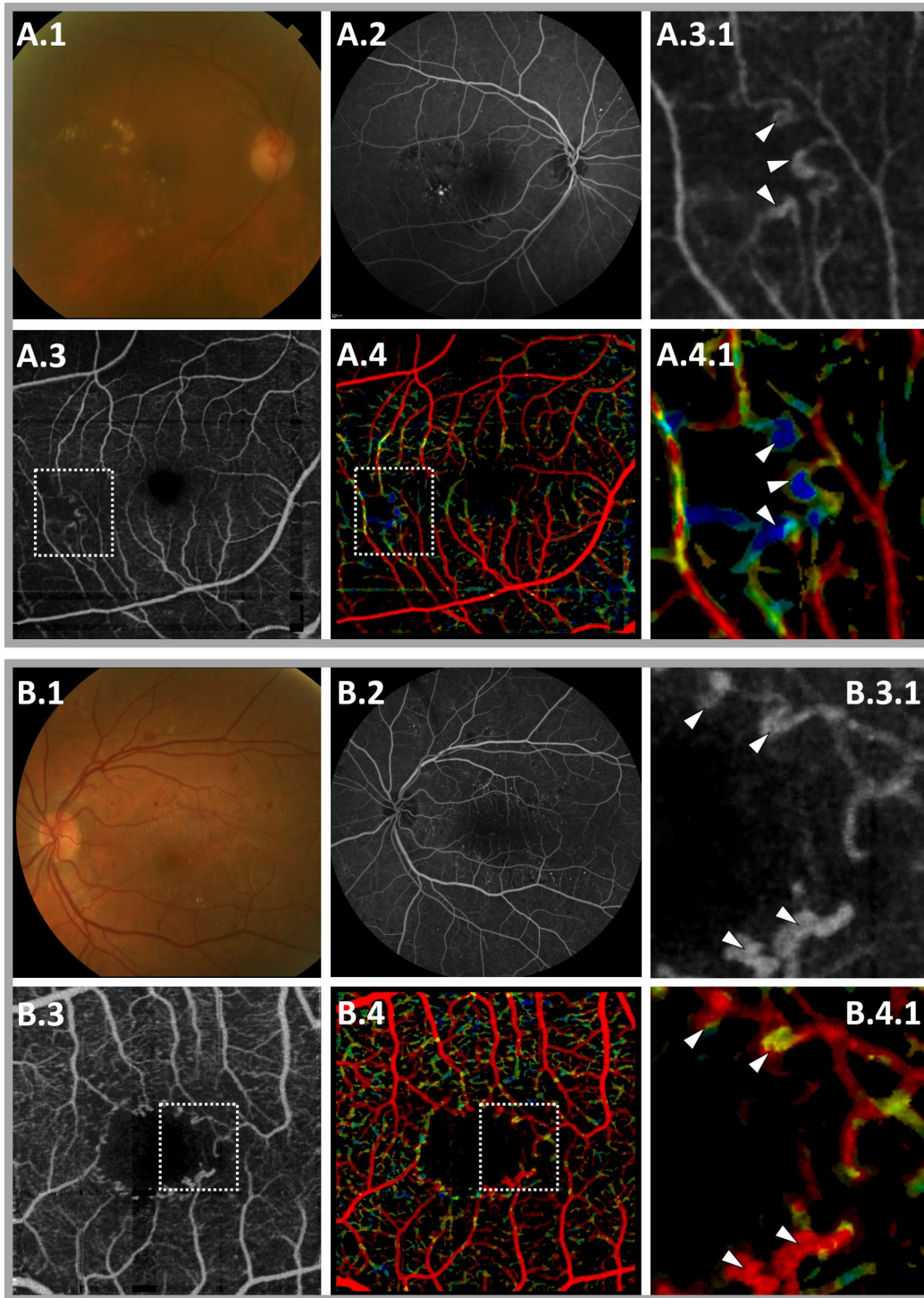
**ABSTRACT BODY:**

**Purpose:** The introduction of optical coherence tomography angiography (OCTA) allows clinicians to study the microvascular alterations that occur in diabetic retinopathy (DR). Standard OCTA systems yield a detailed picture of the presence of vasculature, but have limited dynamic range and provide little information about blood flow speeds. Our group has recently developed variable interscan time analysis (VISTA), which provides a framework for studying relative blood flow speeds using OCTA. This study investigates VISTA to assess microvascular blood flow speeds in eyes with DR.

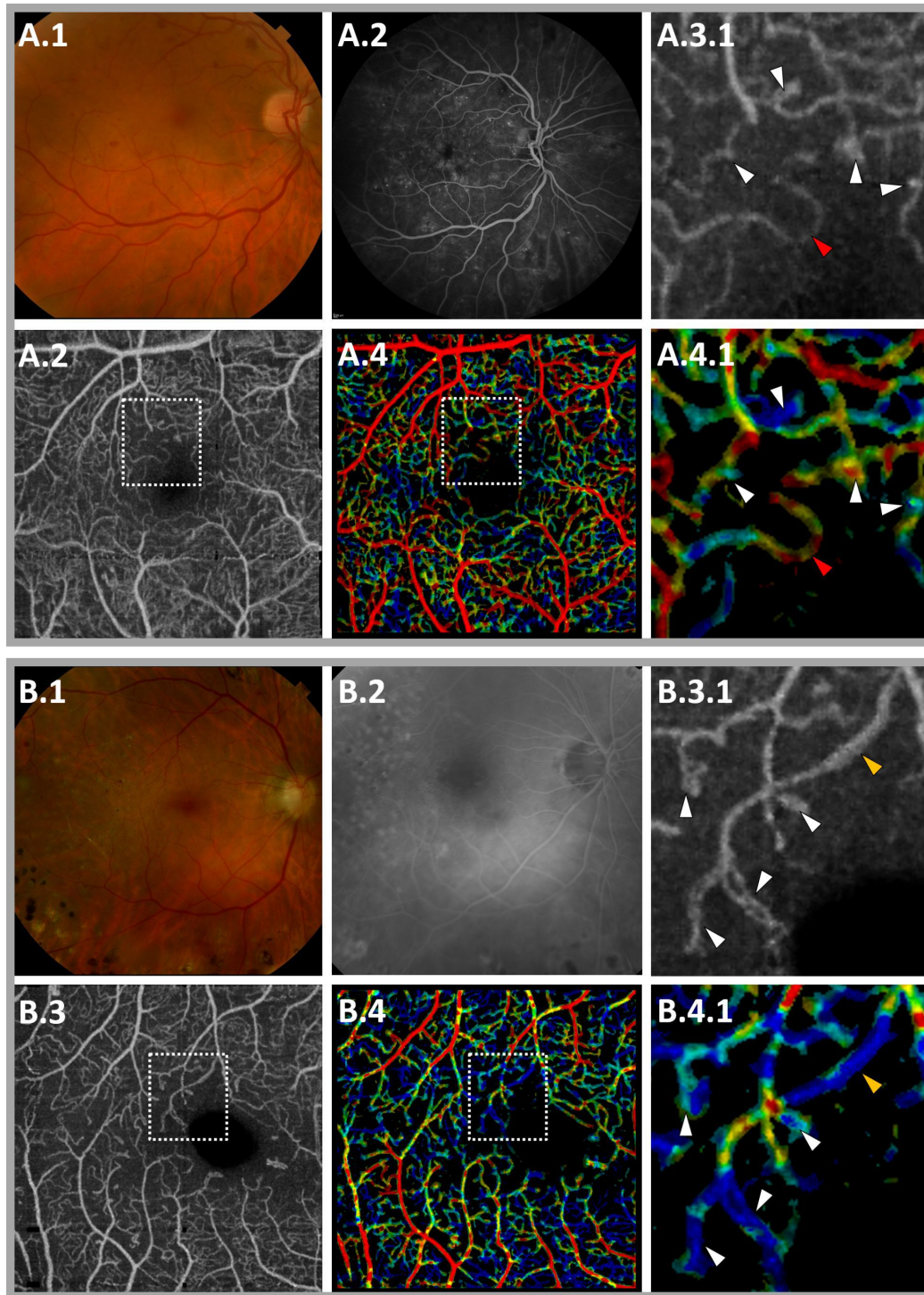
**Methods:** Using a VISTA protocol we analyzed 3 eyes with mild non-proliferative DR (NPDR) (2 patients; 66.7±2.31 y/o), 5 eyes with moderate NPDR (3 patients; 57.6±16.58 y/o), 5 eyes with severe NPDR (4 patients; 51.8±13.44 y/o), and 8 eyes with proliferative DR (PDR) (6 patients; 57.0±13.38 y/o).

**Results:** We observed a range of flow distributions associated with capillary looping/microaneurysms, tortuous vessels, dilated vessels, and neovascularization vessels. Representative VISTA-OCTA images are shown in Figures 1 and 2.

**Conclusions:** VISTA is a useful framework for studying blood flow speeds in eyes with DR.



(A) 68 y/o mild NPDR eye (6x6mm field). (B) 28 y/o moderate NPDR eye (3x3mm field). (A-B).1 Color fundus photos. (A-B).2 Fluorescein angiography. (A-B).3 En face OCTA projections through the retinal vasculature. (A-B).4 VISTA-OCTA images. (A-B.3.1) Enlargements of white boxes in A-B.3. (A-B.4.1) Enlargements of white boxes in A-B.4. White arrows point to suspected capillary loops and/or microaneurysm-like features. In VISTA-OCTA images, blue vs red correspond to slower vs faster blood flow, respectively.



(A) 56 y/o severe NPDR eye (3x3mm field). (B) 65 y/o PDR eye (3x3mm field). (A-B).1 Color fundus photos. (A-B).2 Fluorescein angiography. (A-B).3 En face OCTA projections through the retinal vasculature. (A-B).4 VISTA-OCTA images. (A-B.3.1) Enlargements of white boxes in A-B.3. (A-B.4.1) Enlargements of white boxes in A-B.4. White arrows point to suspected capillary loops and/or microaneurysm-like features, red arrows point to a tortuous vessel, and orange arrows point to vessel dilation. In VISTA-OCTA images, blue vs red correspond to slower vs faster blood flow, respectively.

## DETAILS

**PRESENTATION TYPE:** #1 Paper, #2 Poster

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**Other Registry Site (Abstract):** (none)

**Registration Number (Abstract):** (none)

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**Date Trial Began (MM/DD/YYYY) (Abstract):** (none)

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## TRAVEL GRANTS and AWARDS APPLICATIONS

**AWARDS:** ARVO and ARVO Foundation Travel Grants|ARVO Members-in-Training Outstanding Poster Award

## AFFIRMATIONS

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**Affirmations:** Affirmation that abstract data/conclusions have not been published; not redundant with other submissions from same investigators.

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