

Automated diabetic macular ischemia algorithm predicts retinopathy progression

May 31 2023, by Elana Gotkine



For patients with diabetes, an automated binary diabetic macular

ischemia (DMI) algorithm using optical coherence tomography angiography (OCTA) images predicts diabetic retinal disease progression and deterioration of visual acuity (VA), according to a study published online May 25 in *JAMA Ophthalmology*.

Dawei Yang, Ph.D., from the Chinese University of Hong Kong, and colleagues conducted a cohort study to examine whether an automated binary DMI [algorithm](#) using OCTA images provides prognostic value for [diabetic retinopathy](#) (DR) progression, [diabetic macular edema](#) (DME) development, and VA deterioration in patients with diabetes. A previously developed deep learning algorithm was used to evaluate DMI assessment of superficial capillary plexus and deep capillary plexus OCTA images.

The analysis included 321 eyes from 178 patients. The researchers found that 32.71, 10.28, and 21.18 percent of eyes had DR progression, developed DME, and had VA deterioration, respectively, during a median follow-up of 50.41 months. The presence of superficial capillary plexus-DMI and deep capillary plexus-DMI at baseline was associated significantly with DR progression (hazard ratios, 2.69 and 3.21, respectively); the presence of deep capillary plexus-DMI was also associated with DME development and VA deterioration (hazard ratios, 4.60 and 2.12, respectively), after adjustment for multiple confounding variables.

"Our findings might provide insights for incorporating both OCTA and [artificial intelligence](#) to early detect DMI and further enhance DR management," the authors write.

Several authors disclosed ties to the biopharmaceutical industry.

More information: Dawei Yang et al, Assessment of Parafoveal Diabetic Macular Ischemia on Optical Coherence Tomography

Angiography Images to Predict Diabetic Retinal Disease Progression and Visual Acuity Deterioration, *JAMA Ophthalmology* (2023). DOI: [10.1001/jamaophthalmol.2023.1821](https://doi.org/10.1001/jamaophthalmol.2023.1821)

Amir H. Kashani et al, Optical Coherence Tomography Angiography, Artificial Intelligence, and the Missing Capillaries, *JAMA Ophthalmology* (2023). DOI: [10.1001/jamaophthalmol.2023.1829](https://doi.org/10.1001/jamaophthalmol.2023.1829)

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