Blood flow changes in the eyes could influence visual symptoms of migraines

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A recent study found changes in blood flow in the retina could explain why some migraine patients experience visual symptoms. The findings

could represent a long-sought observable marker for migraines that doctors can use to aid in the clinical treatment of the condition.

While patients with migraines often experience symptoms such as pain around the eye, sensitivity to light, blind spots and visual blurring, the mechanisms behind those symptoms have not been well understood. UCLA Health researchers used a non-invasive imaging technique, known as optical coherence tomography angiography, or OCTA, to visualize changes in the retinal blood vessels of migraine patients both during and between migraine attacks. The imaging was performed on 37 migraine patients with aura symptoms, 30 migraine patients without aura symptoms and 20 healthy patients for a control group.

Researchers found that blood flow decreases in the retina during migraine attacks for both migraine patients with and without aura symptoms. However, patients with aura symptoms were found to have lower blood flow in certain areas of the retina compared to patients without aura symptoms. Additionally, asymmetrical blood flow in the retinas was also correlated with which side of the head that migraine patients experienced pain.

The findings could indicate why some patients experience visual symptoms and may represent a biomarker for migraine attacks.

The paper is published in *Headache: The Journal of Head and Face Pain*.

The study was led by former UCLA Department of Neurology Clinical Instructor Dr. Katherine Podraza (now of the Hartford Healthcare Headache Center) and coauthored by former UCLA Health research scientist Nitin Bangera, UCLA Goldberg Migraine Program clinical research coordinator Akira Feliz and UCLA Goldberg Migraine Program Director Dr. Andrew Charles of the UCLA Department of

Neurology.

More information: Katherine Podraza et al, Reduction in retinal microvascular perfusion during migraine attacks, *Headache: The Journal of Head and Face Pain* (2023). DOI: 10.1111/head.14654

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