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OPTICAL COHERENCE TOMOGRAPHY-ANGIOGRAPHY (OCTA) BIOMARKERS CORRELATING DISEASE STATUS IN BRANCH VEIN OCCLUSION

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Purpose: To objectively assess the macular vascular flow and density changes together with morphological changes in patients with branch vein occlusion using OCTA automated software algorithms.

Study design: Retrospective observational case series.

Setting: Ophthalmology Department, Minia University Hospitals, Minia, Egypt.

Patients & Methods: 20 eyes from patients having branch vein occlusion (including upper and lower temporal branches) with 20 eyes of normal individuals as control were examined using OCTA (RTVue-XR Avanti; Optovue, Inc, Fremont, CA). Foveal avascular zone (FAZ) area, macular vessel density together with corresponding thickness and visual acuity (expressed as the logarithm of the minimum angle of resolution; Log-MAR) were measured in both groups and statistically compared. Different biomarkers; size of the cleared-out areas, sprouted new collaterals and vascular morphological distortion, could be identified and used to assess severity as well as treatment effects.

Results: The mean FAZ (non-flow) area was significantly enlarged in all patients and showed positive correlation with the Log-MAR visual acuity. Statistically significant negative correlation between flow area and foveal thickness ($r=-0.45$, $p=0.0033$). Statistically significant positive correlation between UCVA and foveal thickness ($r=0.47$, $p=0.025$).

Conclusion: OCTA provides a non-invasive imaging modality and helpful tool to quantify and follow macular micro-vascular changes in patients with branch vein occlusion; it could settle treatment guidelines based on biomarkers and indices detected in different cases.

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