Guangdong Provincial People's Hospital

- Advancements in the application of MRI radiomics in meningioma
- Cross-national differences in the association between estimated cardiorespiratory fitness and depressive symptoms among older adults: findings from three nationwide cohort studies
- Brain targeted lipid nanoparticles with Hv1 inhibitors alleviate neuroinflammation post-ischemic stroke
- Development and validation of a nomogram for predicting cancer-related fatigue in patients with glioma: a multicenter study
- Fibro-adipogenic progenitors prevent skeletal muscle degeneration at acute phase upon tendon rupture in a murine tibialis anterior tenotomy model
- Exercise-induced irisin ameliorates cognitive impairment following chronic cerebral hypoperfusion by suppressing neuroinflammation and hippocampal neuronal apoptosis
- CAF-derived LRRC15 orchestrates macrophage polarization and limits PD-1 immunotherapy efficacy in glioblastoma
- Novel drug-inducible CRISPRa/i systems for rapid and reversible manipulation of gene transcription

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Chen et al.. aimed to analyze retinal neurovascular unit (RNVU) alterations and function via optical coherence tomography angiography (OCTA) and full-field electroretinography (ERG) in patients with ischemic stroke (IS).

OCTA was used to measure RNVU changes in 229 participants (101 with IS and 128 healthy controls). The RETeval device was used to record full-field electroretinograms (FERGs) in 40 participants (14 with IS and 26 healthy controls). Logistic regression models for IS were constructed. Receiver operating characteristic (ROS) curves were constructed to assess the predictive value of various models for IS.

Patients with ipsilateral internal carotid artery stenosis (ICAS) had a greater occurrence of IS. A decrease in the vascular density (VD) of the parafovea, FD-300, and nasal optic disc; a decrease in the thickness of the retinal nerve fiber layer (RNFL) around the nasal optic disc; and an increase in the acircularity index (AI) were observed in patients with IS ($P < 0.05$). An increase in the AI was identified as a risk factor for IS, whereas the other factors were found to be protective factors. The IS group presented a delayed a-wave implicit time and decreased b-wave amplitudes at the scotopic point. By incorporating traditional risk factors, the degree of ipsilateral ICAS, and OCTA parameters, a high predictive value for IS was achieved (area under the curve [AUC] = 0.933).

Patients with IS without visible fundus lesions presented changes in the RNVU, characterized by reductions in retinal VD and RNFL thickness, alongside dysfunction of photoreceptor cells and bipolar cells. The combination of RNVU changes with traditional risk factors can enhance the prediction of IS, which provides valuable guidance for monitoring this disease.

Translational relevance: This study demonstrated that the combination of OCTA parameters, the degree of ipsilateral ICAS, and traditional risk factors could enhance the prediction of IS. These findings provide valuable guidance for monitoring IS by assessing RNVUs [1)]

1)
Chen Z, Liao S, Chen G, Li C, Liu C, Liu J, Wu G, Lyu Z, Liu M, Wu X, Ma G, Meng Q. The Combination of Retinal Neurovascular Unit Changes With Carotid Artery Stenosis Enhances the Prediction of Ischemic Stroke. Transl Vis Sci Technol. 2025 Mar 3;14(3):14. doi: 10.1167/tvst.14.3.14. PMID: 40080013.