Abstract: 1409

**Disorganization of inner retinal layers is associated with reduced contrast sensitivity in retinal vein occlusion**

Jay Wang, MD
New Haven, CT

Ying Cui, MD, Megan Kasetty, BS, Rebecca F Silverman, MD, Raviv Katz, BS, Leo Kim, M.D., Ph.D., John B Miller, MD

**Purpose:**
To determine if disorganization of inner retinal layers (DRIL) is associated with reduced contrast sensitivity (CS) in patients with retinal vein occlusions (RVO) with a history of macular edema.

**Methods:**
This was a prospective, observational study. Patients diagnosed with central retinal vein occlusion (CRVO) or branch retinal vein occlusion (BRVO) from October 2017 to July 2019 were included. Patients underwent complete ophthalmic examination including spectral domain optical coherence tomography (SD-OCT) and CS testing was performed using the quick contrast sensitivity function (qCSF) at multiple visits. Eyes without a history of macular edema were excluded. SD-OCT images were analyzed for presence and extent of DRIL, intraretinal fluid (IRF), subretinal fluid (SRF), hyperreflective foci, epiretinal membrane (ERM), external limiting membrane (ELM) disruption, ellipsoid zone (EZ) disruption, central macular thickness (CMT), and central foveal thickness (CFT). Multivariable mixed-effect linear regressions were performed to assess for independent predictors of logMAR visual acuity (logMAR VA) and the area under the log contrast sensitivity function (AULCSF) using Stata (StataCorp). P-values less than 0.05 were considered statistically significant.

**Results:**
A total of 58 visits from 31 patients were included. Of these, 29 (50%) were for CRVO and 29 (50%) were for BRVO. All patients with macular edema received intravitreal injections of anti-VEGF agents. The average age was 63.9 ± 10.5 years (range 35-80), with 14 (45%) females and 18 (41%) right eyes. On multivariable analysis, DRIL extent (p = 0.004), CFT (p = 0.002), and moderate cataract (p = 0.001) were significantly associated with worse logMAR VA. On multivariable analysis, DRIL extent (p < 0.001), CMT (p = 0.007), CFT (p = 0.024), and moderate cataract (p = 0.001) were significantly associated with worse AULCSF.

**Conclusions:**
DRIL extent is correlated with not only worse visual acuity but also reduced contrast sensitivity in eyes with a history of macular edema secondary to retinal vein occlusion. DRIL is an imaging feature that has important implications for visual function.