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PO140- 10:25/10:30**BRVO ASSOCIATED CHANGES IN THE PERIFOVEAL RNFL THICKNESS ANALYZED BY SPECTRALIS® SD-OCT**

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Introduction

The purpose of this study was to evaluate perifoveal retinal nerve fiber layer (RNFL) thickness changes in eyes with branch retinal vein occlusion (BRVO) using Spectralis® spectral-domain optical coherence tomography (SD-OCT).

Materials and methods

Participants were recruited through retrospective data analysis. A cross-sectional evaluation was then performed, where patients underwent a complete ophthalmologic examination and determination of the bilateral perifoveal RNFL thickness using SD-OCT. Patients with persisting macular edema due to BRVO or other ophthalmologic comorbidities were excluded. All the scans were performed using the Spectralis® SD-OCT system (version 5.6.4; Heidelberg Engineering). RNFL thickness measurements were achieved by using circular scans with a retinal diameter of 3.5mm. The OCT scanning circle was manually centered at the fovea and automatically segmented in quadrants. The Spectralis® SD-OCT system software provides a determination of the inner and outer boundaries of the RNFL. Two study authors double-checked all the automatic measurements provided by the system and the RNFL thickness was manually adjusted whenever these lacked precision.

Results

Thirty patients were enrolled in the study. Mean patient age was 60.27 ± 10.29 years with a mean follow-up of 18.27 months. All the patients received at least 3 monthly injections of intravitreal ranibizumab. Further treatment was decided on a PRN basis. Median duration of macular edema was 11.5 months. Mean global RNFL thickness was 39.1 ± 5.69 μm in the BRVO group and 35.6 ± 3.49 μm in the unaffected fellow eye group ($p < 0.05$). As anatomically expected, segmented analysis revealed that mean perifoveal RNFL is thicker in the nasal than in the temporal area, both in the BRVO group (43.8 ± 7.59 μm vs. 25.7 ± 6.51 μm) and in the unaffected fellow eye group ($49.6.3 \pm 5.35$ μm vs. 24.3 ± 2.13 μm). These differences were statistically significant ($p < 0.05$).

Superior BRVOs showed a statistically significant increase in RNFL thickness in the superior region as compared to the same area in the fellow eyes ($p < 0.05$). The opposite was true for inferior BRVOs. Although not statistically significant, there was a trend towards greater thickness of the RNFL in the segment where the BRVO occurred when compared to the opposite area in the same eye. This was valid both for superior and inferior BRVOs.

Conclusions

The Spectralis® SD-OCT RNFL protocol centered at the fovea is a novel technique that appears to be clinically useful for detection of localized RNFL changes. To our knowledge, this was the first study to address the perifoveal changes in RNFL thickness in patients with BRVO. Future prospective studies with larger cohorts and longer follow-ups are required to fully evaluate the effect of these changes in the anatomic and functional prognosis of these patients.