Optical Coherence Tomography and Microperimetry Findings in Ocular Behcet Disease

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Background

- The ocular involvement in Behcet disease (BD), mostly manifesting as bilateral panuveitis, is seen in 60-80% of the patients.[1]
- Fluorescein angiography (FA) and optical coherence tomography (OCT) are routinely used imaging techniques to evaluate the ocular disease entity. Although morphological features can be evaluated by FA and especially OCT, there is a growing demand on an exact functional status of the macular region. The microperimetry (MP) is relatively new tool that provides precise functional information of the macular region. It is possible to define an exact correlation between retinal pathologies and functional defects by this tool even in patients with poor fixation.
- We designed this study to evaluate OCT and MP findings as morphological and functional characteristics in patients with inactive posterior or panuveitis associated with BD.

Patients & Methods

- This retrospective study included 23 eyes of 12 patients. Age, sex, visual acuity (VA), duration of follow-up, central macular thickness (CMT), disruption of retinal photoreceptor zone (PZ) and pigment epithelium (RPE) layer were analyzed. Macular integrity (MI) index, average threshold (AT) and fixation stability (FS) were also evaluated by Microperimeter-1 (MP-1) tool examination.

Results

- There were 12 patients (3 women, 9 men) with inactive posterior or panuveitis associated with BD. The mean age of patients was 30±5.6 years and the mean duration of uveitis was 23.8 months. OCT revealed that none of the patients had macular edema.
- In total, the mean VA of patients was 0.44 and it was negatively correlated with MI index value ($p=0.006$). However, it was positively correlated with CMT ($p<0.001$), AT ($p<0.001$) and FS ($p<0.001$) values.
- Optical coherence tomography and MP-1 findings were also correlated as predicted. Statistically significant positive correlation was found between CMT and AT, FS values (CMT vs AT, $p=0.01$; CMT vs FS, $p=0.008$). Central macular thickness was also negatively correlated with MI index, but it was not statistically significant.
- The OCT images of 6 eyes were not distinct enough to evaluate PZ and RPE disruption. In other patients, PZ/RPE disruption were compared with VA, MI index, AT and FS values. In the eyes of which PZ/RPE layer integrity were good, the mean VA, AT and FS values were higher significantly ($p=0.002$, $p=0.008$ and $p=0.02$, respectively). Although the mean MI index was higher in the eyes with PZ/RPE disruption, it was not statistically significant ($p=0.07$).

Age (years)	Visual acuity (OD)	Visual acuity (OS)	Duration of uveitis (months)
26	0,3	0,4	10
21	1	0,2	36
29	1	0,7	3
28	1	Counting fingers at 100 cm	24
24	Counting fingers at 10 cm	Counting fingers at 200 cm	24
28	1	1	42
31	1	0,6	9
34	Counting fingers at 150 cm	0,9	24
36	0,1	Light perception	33
39	Hand motion at 50 cm	0,1	36
38	0,1	Counting fingers at 30 cm	36
27	0,1	1	35

Conclusions

- Fluorescein angiography and especially OCT have a great importance in the evaluation of anatomical status in many retinal pathologies. In the assessment of the foveal fuction, visual acuity is used currently. However, a significant number of patients with BD complain of poor vision and thus, visual acuity is not a sufficient marker to evaluate visual function. Especially for patients with poor visual acuity, we need novel methods to assess visual function. Retinal sensitivity map obtained by the MP-1 provides detailed information on macular function even in patients with low visual acuity.
- Optical coherence tomography findings in BD have been investigated by several authors. Kim et al.[2] reviewed choroidal thickness in the active and quiescent phases of Behcet uveitis and reported choroidal thickening in the active phase. A study by Unoki et al.[3] reviewed elipsoid zone changes during remission of ocular BD. Our study also showed that VA correlates significantly with PZ/RPE regularity and CMT.
- Microperimetry has been used in different retinal pathologies such as age-related macular degeneration, macular distrophies and diabetic macular edema.[4-5] Similar to OCT findings, MP-1 examination findings also correlated with VA of the patients in our study. Furthermore, OCT and MP-1 findings were correlated with each other significantly.
- Althouh our sample size is small, the results of our study shows that VA is highly related with PZ/RPE regularity, MI index, AT and FS values by MP-1 examination. Therefore, microperimetry can be useful in the assessment of the visual function of the patients with inactive ocular BD.

References

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