Use of Optical Coherence Tomography in Myopia

To the Editors:
I read with interest the article that appeared in the May/June issue about using optical coherence tomography in myopia. I agree with the authors that optical coherence tomography can serve as a useful diagnostic tool to detect the evolution of pathologic alterations in myopia. Measurement of the retinal nerve fiber layer with optical coherence tomography may be an area of interest because patients with myopia have a higher predisposition to glaucoma. Monitoring changes in the retinal nerve fiber layer is important in eyes with myopia, especially if they have concurrent glaucoma. The thickness of the retinal nerve fiber layer is known to vary by racial group; thus, it is important to have an age-matched normative database of the retinal nerve fiber layer to determine its thinning in myopes with certainty. Also, myopes are known to have large optic discs, tilted discs, and large areas of peripapillary atrophy. These associated conditions can result in artifactual thinning and errors in the measurement of the retinal nerve fiber layer if circular scans of fixed diameter are used. I would like to know whether the authors encountered similar cases and what diameter of circular scan they used for measurement of the retinal nerve fiber layer.

In addition, regarding the retinal thickness scans, the authors mention the foveal retinal thickness of three different groups of eyes. Whether this refers to the average retinal thickness along the linear scan or the thickness in the center (foveola) is not clear. Angular orientation of the scan and whether a single linear scan or multiple linear scans were used are not mentioned in the article. The scans shown in Figures 1 and 2 of the article do not reveal any foveolar depression. Was it absent in all of the eyes included in the study? I am interested in knowing whether the scans were centered onto the fovea.

REFERENCES

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Reply:
I am pleased by the interest Dr. Sony has shown in our article. He raises several points that merit clarification.

As Dr. Sony points out, measurement of the retinal nerve fiber layer using optical coherence tomography is very important in eyes with myopia, especially if they have concurrent glaucoma. However, in our patients the intraocular pressure ranged between 14 and 18 mm Hg. Our group hopes to evaluate optical coherence tomography for myopes with elevated intraocular pressure in the future.

I agree that it is important to have an age-matched normative database of the retinal nerve fiber layer thickness to determine with certainty whether it is thinning in eyes with myopia. In our study, there were 30 patients and the control group...
consisted of 15 patients. The control group was small, but sufficient for statistical comparisons.

Linear scans are performed to evaluate foveal thickness and circular scans are used around the optic disc to measure the thickness of the nerve fiber layer. In our patients, the fovea was scanned with the horizontal and vertical axes centered through it while the retina was observed through an infrared monitoring camera. Linear scans of 2.83 or 3.01 mm were performed.

For our patients, circular scans 3.4 mm in diameter centered on the optic disc were obtained. The diameter was fixed at 3.4 mm (1.7-mm radius) based on a previous study. Schuman et al. chose 3.4 mm because it is large enough to avoid overlap with the optic nerve head in nearly all eyes yet allows measurement in an area with a thicker retinal nerve fiber layer than expected with a 4.5-mm circle. In addition, reproducibility was found to be significantly better at a diameter of 3.4 mm than at a diameter of 2.9 mm.

**REFERENCE**


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