

Re: Lee M.W. et al.: Longitudinal Changes in Peripapillary Retinal Nerve Fiber Layer Thickness in High Myopia

To the Editor,

We were interested to read this study, with its finding that “highly myopic eyes had a significantly greater decrease in pRNFL over 2 years than normal eyes.”[1] We have found pRNFL to be cross-sectionally associated with myopia (and IOP, age, and smoking, among others)[2] as well as optic disc area[3]. The possible reasons for the greater thinning are of interest, particularly with the rising prevalence of high myopia in the world. The authors speculate that preperimetric glaucoma might be a cause; while high myopia is a risk factor for glaucoma[4], the authors have taken care to exclude individuals with glaucoma or with ocular hypertension. There are two possible other reasons: one, with potentially important implications given the interest in pRNFL as a biomarker of brain health, is that myopes are more likely to undergo neurodegeneration, though this seems unlikely. The other possibility is that retinal stretching and thinning is continuing in high myopes, particularly at older ages (either through progressive axial growth or staphyloma formation at the disc). The authors mention that axial length was measured, but other than baseline measures this was not analyzed. We wonder if the authors would consider examining these data, to see if there was progressive axial elongation in this group, or if the optic disc area and peripapillary atrophy increased during the three years’ follow up, as a possible explanation for the greater progression of pRNFL thinning?

As a final comment, we note a discrepancy between the inclusion criteria for the cases and control groups. The stated inclusion criteria for high myopia eyes was based on axial length >26.0 mm, while that for the control group eyes was based on spherical equivalent between

+3.0 and -6.0 D. Can the authors confirm there was no overlap in either criterion between groups? Similarly, the analysis consisted of 80 eyes in 79 subjects in the high myopia group and 80 eyes in 77 subjects in the control group and the criteria for which subjects had both eyes included (and the choice of which eyes in the others) would be helpful to know.

1. Lee, M.W., et al., *Longitudinal Changes in Peripapillary Retinal Nerve Fiber Layer Thickness in High Myopia: A Prospective, Observational Study*. *Ophthalmology*, 2019. **126**(4): p. 522-528.
2. Mauschitz, M.M., et al., *Systemic and Ocular Determinants of Peripapillary Retinal Nerve Fiber Layer Thickness Measurements in the European Eye Epidemiology (E3) Population*. *Ophthalmology*, 2018. **125**(10): p. 1526-1536.
3. Jones-Odeh, E., et al., *The correlation between cognitive performance and retinal nerve fibre layer thickness is largely explained by genetic factors*. *Scientific reports*, 2016. **6**: p. 34116-34116.
4. Marcus, M.W., et al., *Myopia as a risk factor for open-angle glaucoma: a systematic review and meta-analysis*. *Ophthalmology*, 2011. **118**(10): p. 1989-1994.e2.

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