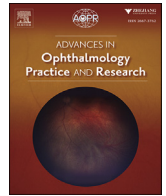


Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

# Advances in Ophthalmology Practice and Research

journal homepage: [www.journals.elsevier.com/advances-in-ophthalmology-practice-and-research](http://www.journals.elsevier.com/advances-in-ophthalmology-practice-and-research)

## Letter to the Editor

### Response to letter to the editor regarding "Is relying on RNFL specific enough to identify any changes in the CNS?"

Dear editor,

Thank you for your letter. We appreciate you put forward such an intriguing question. And we also very agree with your viewpoint on possible reasons of RNFL thickening in pregnant women.

RNFL is the inner retinal layer formed of axons from the retinal ganglion cells, and is the only CNS structure which is visible on fundoscopic examination as axons converge in the optic disc.<sup>1</sup> Therefore, optic nerve is considered the "window to the brain" for many systemic diseases. The previous literatures are listed in your letter in the Table 1. However, pregnant women is a special group, who undergo many metabolic and anatomical physiological changes to adapt to the physiological stress on their bodies. In Demir's study, they found foveal and parafoveal retinal thicknesses were higher in healthy pregnant women in their last trimester than in controls.<sup>2</sup> Atas et al.<sup>3</sup> also found that RNFL thickness was significantly thicker in mild pre-eclamptic and healthy pregnant groups than in the healthy non-pregnant group. They speculated that pregnancy may cause fluid retention in the retinal tissue. Therefore, we think that this could also be a reason for the observed thickening of the RNFL in pregnant women.

We all know that blood pressure rises in some pregnant women. If it exceeds the normal value and proteinuria occurs in pregnant women. This is known as pre-eclampsia. The observation of a greater reduction in RNFL thickness in these patients. One can speculate that the increase in blood pressure during pregnancy has a microstructural adverse effect on the retina, leading to RNFL atrophy.<sup>4</sup> In addition, retinal oedema associated with cerebral oedema in pre-eclampsia may also increase RNFL thickness.<sup>5</sup> Thinner RNFL thickness has also been reported in pregnant women with gestational diabetes mellitus (GDM), which may be the earliest sign of neurodegenerative changes in GDM.<sup>6</sup>

Our findings of changes in RNFL thickness in pregnant women may highlight the importance of early detection and diagnosis of relative complications of pregnancy to avoid any likely irreversible damage to the RNFL. The examination method is rather uniform, which is the limitation of our study. Future investigations using various other parameters such as full-field electroretinogram, magnetic resonance imaging, longer follow-up, and more are needed to confirm our speculation.

### Declaration of competing interest

The authors declare that they have no known competing financial

interests or personal relationships that could have appeared to influence the work reported in this paper.

### References

1. Kaushik S, Kataria P, Jain V, et al. Evaluation of macular ganglion cell analysis compared to retinal nerve fiber layer thickness for preperimetric glaucoma diagnosis. *Indian J Ophthalmol.* 2018;66(4):511. [https://doi.org/10.4103/ijo.IJO\\_1039\\_17](https://doi.org/10.4103/ijo.IJO_1039_17).
2. Demir M, Oba E, Can E, et al. Foveal and parafoveal retinal thickness in healthy pregnant women in their last trimester. *Clin Ophthalmol.* 2011;5:1397–1400. <https://doi.org/10.2147/OPHT.S23944>.
3. Ataş M, Açmaz G, Aksoy H, et al. Evaluation of the macula, retinal nerve fiber layer and choroid in preeclampsia, healthy pregnant and healthy non-pregnant women using spectral-domain optical coherence tomography. *Hypertens Pregnancy.* 2014; 33(3):299–310. <https://doi.org/10.3109/10641955.2013.877924>.
4. Arab M, Entezari M, Ghamary H, et al. Peripapillary retinal nerve fiber layer thickness in preeclampsia and eclampsia. *Int Ophthalmol.* 2018;38(6):2289–2294. <https://doi.org/10.1007/s10792-017-0718-9>.
5. Tok A, Beyoğlu A. Antenatal and postpartum comparison of HD-OCT findings of macula, retinal nerve fiber layer, ganglion cell density between severe preeclampsia patients and healthy pregnant woman. *Hypertens Pregnancy.* 2020;39(3):252–259. <https://doi.org/10.1080/10641955.2020.1758938>.
6. Tengku-Fatishah A, Nik-Ahmad-Zuky NL, Shatriah I. Macular and retinal nerve fibre layer thickness in pregnant women with gestational diabetes mellitus. *Clin Ophthalmol.* 2020;14:1215–1221. <https://doi.org/10.2147/OPHT.S245054>.

Hanfei Wu<sup>1</sup>

Department of Ophthalmology, The People's Hospital of Zhuji, Shaoxing, Zhejiang, China

Haishuang Lin<sup>1</sup>

Department of Ophthalmology, The Second Affiliated Hospital of Wenzhou Medical University, Wenzhou, Zhejiang, China

Mengting Ruan

Department of Obstetrics, The People's Hospital of Zhuji, Zhejiang, China

Huanjie Fang, Nannan Dong, Tiewei Wang, Feifei Yu, Jiawei Zhao\*

Department of Ophthalmology, The People's Hospital of Zhuji, Shaoxing, Zhejiang, China

\* Corresponding author.

E-mail address: [Zjzjw0505@sina.com](mailto:Zjzjw0505@sina.com) (J. Zhao).

DOIs of original article: <https://doi.org/10.1016/j.aopr.2024.01.002>, <https://doi.org/10.1016/j.aopr.2023.12.001>.

<sup>1</sup> This author contributed to the work equally.

<https://doi.org/10.1016/j.aopr.2024.01.003>

Received 16 January 2024; Accepted 17 January 2024

Available online 7 February 2024

2667-3762/© 2024 Published by Elsevier Inc. on behalf of Zhejiang University Press. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).