

Comment on “The diurnal variation pattern of choroidal thickness in macular region of young healthy female individuals using spectral domain optical coherence tomography”

Salih Uzun¹, Emre Pehlivan², Mehmet Gulmez³

¹Department of Ophthalmology, Etimesgut Military Hospital, Ankara 06200, Turkey

²Department of Ophthalmology, Eskisehir Military Hospital, Eskisehir 26010, Turkey

³Department of Ophthalmology, Dunya Goz Hastanesi, Konya 42000, Turkey

Correspondence to: Salih Uzun. Etimesgut Asker Hastanesi Goz Hastaliklari Servisi, Etimesgut-Ankara 06790, Turkey. s.uzun84@gmail.com

Received: 2016-05-23 Accepted: 2017-07-18

DOI:10.18240/ijo.2017.11.26

Citation: Uzun S, Pehlivan E, Gulmez M. Comment on “The diurnal variation pattern of choroidal thickness in macular region of young healthy female individuals using spectral domain optical coherence tomography”. *Int J Ophthalmol* 2017;10(11):1789-1790

Dear Editor,

We have read and reviewed the article entitled “The diurnal variation pattern of choroidal thickness in macular region of young healthy female individuals using spectral domain optical coherence tomography” by Zhao *et al*^[1] with great interest.

The authors evaluated the pattern of diurnal variations of choroidal thickness (CT) at macular region of healthy humans by optical coherence tomography. They found significant diurnal variations in CT at fovea, at 500 µm nasal and temporal to fovea and 1500 µm nasal to fovea. We congratulate Zhao *et al*^[1] for this comprehensive study. Additionally, we would like to ask three subjects which shall affect CT and study results.

First, Zhao *et al*^[1] have mentioned that 32 participants included in the study were female. The average age of the participants was given to be 26.0±3.1y (range, 23.1-33y). It is known that menstrual cycle and pregnancy have certain effect on CT^[2-3]. Ulaş *et al*^[2] showed that CT decreased by 6.47% between early follicular and mid-luteal phases and by 2.64% between early follicular and ovulatory phases.

Second, pregnancy may have significant effect on CT. Although this subject is controversial in the literature, there are studies showing that subfoveal CT increases in pregnancy, and this increase may be especially within the second trimester^[3].

Third, participants' smoking and consumption of alcohol and caffeinated drinks/foods are among the factors which may significantly affect CT^[3-4]. We think that all these factors we have mentioned may affect study results. We would like to ask Zhao *et al*^[1] whether they have evaluated all these parameters.

ACKNOWLEDGEMENTS

Conflicts of Interest: Uzun S, None; Pehlivan E, None; Gulmez M, None.

REFERENCES

1 Zhao M, Yang XF, Jiao X, Lim A, Ren XT, Snellingen T, Liu NP. The diurnal variation pattern of choroidal thickness in macular region of young healthy female individuals using spectral domain optical coherence tomography. *Int J Ophthalmol* 2016;9(4):561-566.

2 Ulaş F, Doğan U, Duran B, Keleş A, Ağca S, Celebi S. Choroidal thickness changes during the menstrual cycle. *Curr Eye Res* 2013;38(11):1172-1181.

3 Tan KA, Gupta P, Agarwal A, Chhablani J, Cheng CY, Keane PA, Agrawal R. State of science: choroidal thickness and systemic health. *Surv Ophthalmol* 2016;61(5):566-581.

4 Nickla DL, Wallman J. The multifunctional choroid. *Prog Retin Eye Res* 2010;29(2):144-168.

Author Reply to the Editor

Dear Editor,

I am grateful for Uzun *et al*'s interest in the manuscript entitled “The diurnal variation pattern of choroidal thickness in macular region of young healthy female individuals using spectral domain optical coherence tomography”. I would like to discuss three questions here.

First, we failed to consider the menstrual cycle as a potential factor that might influence CT at study design. Ulaş *et al*^[1] showed the possible relationship between menstrual cycle and CT. The subjects of our study were scanned twice within 1-4wk, which meant CT might be re-measured at different period of the menstrual cycle of each subject. The diurnal

variation of CT was found in both series of examination. It may suggest that the diurnal variation of CT may exist even if the subject may at the different menstrual cycle. What's more, the mean±standard deviation (standard error of the mean) of subfoveal CT in the early follicular, ovulatory and mid-luteal phases were 383.87±84.38 (17.59), 373.74±82.40 (17.18) and 359.09±79.65 (16.61) $\mu\text{m}^{[1]}$. The variation of CT during different period of menstrual cycle was much smaller than the daily variation of CT reported by our study. We may consider the variation of CT caused by diurnal variation may cover the variation of CT caused by menstruation. Further work considering both menstruation and diurnal variation of CT may be needed to answer it.

Second, neither of our volunteers was pregnant during both series of examinations. We can't add more information on the relationship between pregnancy and CT.

Third, smoking, consumption of alcohol and caffeinated drinks (including tea) were items included in our daily questionnaire and neither of our volunteers was a smoker. The alcohol or

caffeinated drinks were prohibited as they may influence the sleep cycle. All volunteers ate the same kind of Chinese-fast-food at breakfast, lunch and supper together during both series of measurements. So we failed to show the potential role of these three factors on CT variation.

The diurnal variation of CT existed according to our research, however, the amplitude of CT diurnal variation might be related to some factors unknown. Further work with larger sample size and more potential factors may be helpful to explore the issue.

REFERENCE

1 Ulaş F, Doğan U, Duran B, Keleş A, Ağca S, Celebi S. Choroidal thickness changes during the menstrual cycle. *Curr Eye Res* 2013;38(11): 1172-1181.

Ning-Pu Liu

Beijing Tongren Eye Center, Beijing Tongren Hospital, Capital Medical University, Beijing Ophthalmology and Visual Sciences Key Laboratory, Beijing 100730, China