Temperature control role of the choroid may affect choroidal thickness after dynamic exercise

Yıldıray Yıldırım, Abdullah Kaya, Taner Kar

Department of Ophthalmology, GATA Haydarpasa Training Hospital, Istanbul, Turkey

Correspondence to: Dr. Abdullah Kaya, Department of Ophthalmology, GATA Haydarpasa Training Hospital, Istanbul, Turkey.
E-mail: abdullahkayamd@gmail.com

Dear Sir,

We read the current article, "choroidal thickness (CT) changes after dynamic exercise as measured by spectral-domain optical coherence tomography," with interest.[1] In this well-organized study, authors have investigated CT to be increased when measured 5 min after exercise and normalized at measurement after 15 min. Results are being discussed very well. Besides, we want to make some contributions that may widen discussion area on these findings.

As authors addressed in introduction, choroid is believed to have a role in temperature regulation.[2] Choroid has highest blood flow in the body. Its blood flow is 10 times higher than blood flow through gray matter of brain.[3] However, this high blood flow does not correspond to metabolic requirements. High blood flow of the choroid is believed to protect retina from heat stress.[4] Body temperature rises during exercise. Elevated temperature may harm sensitive retinal cells such as photoreceptors and retina pigment epithelium. Although body temperature is being controlled by hypothalamus during exercise, increase in choroidal blood flow may contribute to this process to protect retina. Retina may need an extra heat lowering mechanism during exercise because of its sensitive structure and heat storing potential of the vitreous. As a result, increase in choroidal blood flow and thereby CT is an expected result. We believe that, finding in this study should also be discussed according to retinal cooling. On the other hand, in a study, CT have found not to be changed by exercise.[5] Average age of patients in this study is 60.6 (±10.4 years) while 27 ± 4.08 in the current study. Age may affect changes in CT.

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Conflicts of interest

There are no conflicts of interest.

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