Arquivos Brasileiros de
Oftalmologia

Macular perfusion changes in people administered two types of COVID-19 vaccines: comment

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Dear Editor,

Here, we discuss the article "Macular perfusion changes in people administered two types of COVID-19 vaccines: optical coherence tomography angiography study[(1)]". Participants in a cohort study who received two doses of the CoronaVac vaccine and one dose of the BNT162b2 vaccine underwent pre- and post-vaccination ophthalmologic tests and imaging procedures. Following immunization with both vaccinations, vascular densities in the superficial and deep capillary plexuses as well as choriocapillaris flow significantly decreased.

The study's modest sample size-just 24 people, each of whom had one eye evaluated-is a limitation. Furthermore, there was no control group available for comparison. There were no long-term data on the effects of the vaccinations on the ocular vasculature available, and the follow-up time was brief. Future research on the long-term effects of COVID-19 vaccinations on ocular health should employ bigger sample sizes and longer follow-up times to overcome these shortcomings. It would be beneficial to compare the effects of various vaccination types on the ocular vasculature by including a control group. Additionally, studying the fundamental processes driving alterations in the ocular vasculature following immunization may provide crucial insights into how vaccinations affect eye health.

In addition to these recommendations, other influences of COVID-19 vaccinations on ocular health should be investigated: for example, examining the possible mechanism behind the noted modifications in macular perfusion after immunization. Elucidating the underlying pathophysiology may help to clarify how immunization affects ocular vasculature. Not to mention how the COVID-19 vaccine affects other eye characteristics like visual acuity, thickness of the retinal nerve fiber layer, and intraocular pressure. Studies with long follow-up periods that are longitudinal can also be beneficial.

AUTHOR CONTRIBUTIONS:

Significant contribution to conception and design: Hinpetch Duangsupawong, Viroj Wiwanitkit. **Data Acquisition:** Hinpetch Duangsupawong, Viroj Wiwanitkit. **Data Analysis and Interpretation:** Hinpetch Duangsupawong, Viroj Wiwanitkit. **Manuscript Drafting:** Hinpetch Duangsupawong. **Significant intellectual content revision of the manuscript:** Hinpetch Duangsupawong, Viroj Wiwanitkit. **Have given final approval of the submitted manuscript:** Hinpetch Duangsupawong, Viroj Wiwanitkit. **Statistical analysis: Not applicable. Obtaining funding:** Not applicable. **Supervision of administrative, technical, or material support:** Viroj Wiwanitkit. **Research group leadership:** Hinpetch Duangsupawong, Viroj Wiwanitkit.

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Submitted for publication: March 4, 2024
Accepted for publication: April 8, 2024

Funding: This study received no specific financial support.

Disclosure of potential conflicts of interest: None of the authors have any potential conflicts of interest to disclose.

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Response to Daungsupawong and Wiwanitkit

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Dear Editors,

We welcome the response of Drs. Daungsupawong and Wiwanitkit to our article examining macular perfusion changes in patients who received two types of COVID-19 vaccines. We would like to note that the COVID-19 vaccine was administered in Turkey only to a limited group that included healthcare workers and the elderly given the health emergency at that time. Consequently, we were restricted to a relatively small sample size. We understand the necessity and importance of studying effects of these vaccines in larger groups and acknowledge this as a limitation of our study.

Our study includes a control group; however, this group was specifically designed to test the repeatability of optical coherence tomography angiography measurements. It was determined that a prospective comparison within the sample group itself would yield more objective results.

In the literature, most ocular vascular events following COVID-19 vaccinations occur within the first two weeks, rarely extending to four weeks. Consequently, we designed the follow-up period to be 2-4 weeks[1-3].

We acknowledge and appreciate the authors' suggestions, as conducting future studies with larger sample sizes, more parameters, longer follow-up periods, and comparison with control groups receiving other vaccines will significantly enhance our understanding of ocular health.

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