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CORRESPONDENCE

Comment on: Optical Coherence Tomography Angiography Features in Post-COVID-19 Pneumonia Patients: A Pilot Study



EDITOR,

WE HAVE READ WITH GREAT INTEREST THE ARTICLE BY Cennamo and associates,¹ in which the authors analyzed changes in the retinal vasculature in post-SARS-CoV-2 (COVID-19) pneumonia with optical coherence tomography angiography (OCT-A); however, we believe that some discussion is required.

This well-conducted prospective, observational, cohort-controlled study compared 40 eyes of healthy participants with 40 post-COVID-19 participants. The eyes in the post-COVID-19 group showed a significant reduction in vessel density of the superficial capillary plexus in whole images and in the deep capillary plexus in the whole image and sectors compared with healthy subjects. However, the authors did not show sectoral differences in SCP and radial peripapillary plexus. The lack of changes between the sectors and borderline *P*-values should raise concern if the disease or variability caused the differences in whole image density.

In our paper,² in which we conducted a similarly designed study, but on a much larger group of 254 eyes of 254 participants, we did not find any vascular changes or differences in OCT parameters such as retinal nerve fiber layer thickness (RNFL) or central macular thickness (CMT). In addition, Cennamo and associates included only moderate illness, not requiring supplemental oxygen in hospitalized patients. We, on the other hand, included all cases from mild to severe. Again, neither oxygen nor hospitalization correlated with any OCT parameters measured.

Recently, there have been a few publications on the effect of signal strength index (SSI) on the quantitative outputs of OCTA devices like vessel density (VD).³ Although the authors compared the SSI values between the groups, they did not correlate them with the OCT-A parameters. Would the authors hypothesize that part of the reported association be possible due to SSI in the light of these findings?

As the authors have stated in this study, complement-mediated thrombotic microangiopathy was associated with

thrombotic changes in post-COVID-19 patients. This is true, and COVID-19 has led to central retinal vein occlusion in some case reports.⁴ However, microvascular infarct would likely lead to other changes such as cotton wool spots, exudates, and hemorrhages. None of these retinal findings was observed by the authors.

In conclusion, we believe that reports on COVID-19-induced retinal vasculature changes may have resulted from artifacts or variability, and a more extensive multicenter study is needed to confirm the findings.

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