Author Response: Quantitative Retinal Optical Coherence Tomography Angiography in Patients With Diabetes Without Diabetic Retinopathy

We thank Tang and Cheung[1] for their interest in our published article.[2] Tang and Cheung[1] suggest implementing projection-resolved (PR) algorithms to obtain accurate optical coherence tomography angiography (OCTA) images from the deeper retinal layers. Using a PR algorithm for OCTA image analysis allows for reduction of the flow-projection artifact.[3] The flow-projection artifact is intensity dependent. Low projection values are located on the layers with low OCT intensity signals, such as inner nuclear layer and outer nuclear layer, and high projection values are located on the layers with high-intensity signals, such as inner segment/outer segment junction and RPE. This means that the PR algorithm is particularly effective in reducing the projection artifacts from the outer retinal layer, which was not the subject of study in our article. However, by reducing the shadowing effect of the superficial blood vessels, the PR algorithm allowed for the distinction of three separate retinal capillary networks: superficial, intermediate, and deep.[3] Using the automatic slab segmentation software and slab-subtraction (SS) algorithm for projection artifact removal, two retinal capillary networks are presented: superficial and deep.[4] The vascular pattern similarity study showed that both the SS and the PR algorithm have a similar negative correlation (Pearson's correlation coefficient of −0.2 for PR algorithm and −0.2 to −0.3 for the SS algorithm) in the deep capillary plexus compared with the superficial and intermediate capillary plexus.[3] Therefore, we believe that implementing the PR algorithm would not alter our results concerning the deep capillary plexus significantly. However, we appreciate the continuous effort for increasing data quality and we are looking forward to further studies on the effect of diabetes on all three capillary layers in the retina.

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References

1. Tang F, Cheung CY. Quantitative retinal optical coherence tomography angiography in patients with diabetes without diabetic retinopathy. *Invest Ophthalmol Vis Sci*. 2017;58:1766.
2. Dimitrova G, Chihara E, Takahashi H, Amano H, Okazaki K. Quantitative retinal optical coherence tomography angiography in patients with diabetes without diabetic retinopathy. *Invest Ophthalmol Vis Sci*. 2017;58:190–196.
3. Zhang M, Hwang TS, Campbell JP, et al. Projection-resolved optical coherence tomographic angiography. *Biomed Opt Express*. 2016;7:816–828.
4. Zhang A, Zhang Q, Wang RK. Minimizing projection artifacts for accurate presentation of choroidal neovascularization in OCT micro-angiography. *Biomed Opt Express*. 2015;6:4130–4143.

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