

Author Response: Changes in Choroidal Vascularity Index in Intermediate Uveitis

We appreciate the comments by Costigliola et al. on our recent published study “Changes in Choroidal Vascularity Index (CVI) in Intermediate Uveitis.”⁵

We acknowledge that the CVI could be affected by the blooming effect,^{1–3} resulting in either an overestimation or underestimation of the CVI value. However, efforts were made to standardize the CVI calculation.

Previously, Vupparaboina et al.⁴ determined whether shadow compensation has an influence on CVI calculation. Shadow compensation is the processing algorithm used to enhance the contrast between the vascular lumen and choroidal stroma. In a shadow compensated optical coherence tomography (OCT) scan, the choroid will appear with greater brightness than neurosensory retina. In their results, the mean CVI in shadow-compensated scans was significantly higher than in raw scans, confirming that shadow compensation potentially affects CVI measurement.

There are reasons we believe that the blooming effect was minimized in our study. First, image saturation and contrast were set at the same value for all OCT images before CVI measurement. Second, a default setting of the OCT platform was used to obtain OCT scans throughout the study period. Last, we applied our algorithm to outline the boundary of total choroidal area using prespecified polygonal tools in ImageJ. Therefore, the size of total choroidal area was standardized.

Nevertheless, we acknowledge that CVI measurements do have their limitations and excluded poor quality OCT images, including those caused by significant ocular media opacity and images without a distinguishable sclerochoroidal junction. We had noted that further adjustment for contrast and brightness by the grader was necessary to better distinguish between luminal and stroma. As a result, the CVI values in these images greatly depended on each grader’s settings, resulting in high variability in CVI calculation, resulting in the need for these images to be excluded

In summary, we have standardized our CVI measurement by using a default setting of OCT

platform and controlled OCT image parameters. We would like to highlight that these steps are important to consider when calculating the CVI to obtain an accurate CVI value.

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