Letters

COMMENT & RESPONSE

Correspondence Regarding Changes in the Incidence of Retinal Vascular Occlusions After COVID-19 Diagnosis

To the Editor We read with great interest the article by Modjtahedi et al1 that showed an increasing incidence of retinal vascular occlusion after a COVID-19 diagnosis. The authors identified confounding factors, including hypertension, diabetes, and hyperlipidemia, but did not mention heart diseases (eg, coronary artery disease, acute myocardial infarction, or atrial fibrillation), peripheral vascular disease, systemic vasculitis (eg, systemic lupus erythematosus, syphilis, or sarcoidosis), or chronic liver/kidney disease. Bias may arise from insufficient inclusion of confounding factors for analysis. A nationwide population-based study2 has revealed that coronary artery disease and atrial fibrillation are very relevant risk factors for retinal vascular disease. In addition, glaucoma is an important ocular risk factor for retinal vascular occlusion based on a recent meta-analysis.3 Therefore, we suggest further investigation of the association between retinal vascular occlusion and COVID-19 infection that considers these other potential risk factors.

Several studies have reported retinal vascular occlusion after COVID-19 infection with different time sequences. The duration between COVID-19 symptoms and diagnosis of retinal vascular disease varied from within a week to almost 2 months4 with resolution of the retinal vascular change in weeks or months. Modjtahedi et al1 concluded the highest incidence rates of retinal artery occlusion (RAO) and retinal vein occlusion (RVO) were 10 to 12 weeks and 6 to 8 weeks after COVID-19 diagnosis, respectively. This finding is much longer than the related case reports and cases that we surveyed. The discrepancy in the highest incidence rate of RAO and RVO is intriguing. Therefore, the underlying factors associated with the RVO should be elaborated.

According to Table 2, an association in group 1 to group 2 was noted for obese patients but not in group 1 to group 3. Obesity is an established risk factor of retinal vascular occlusion; could the authors3 explain this inconsistency?

Regarding potential bias in this analysis, systemic medications also may play an influential role in the occurrence of retinal vascular disease, including antiplatelet and anticoagulation agents, diuretics, and oral contraceptives. However, these do not appear to be discussed in this study.1 Park et al5 found a higher hazard ratio for RVO but not for RAO with direct-acting oral anticoagulants. Diuretics will increase the plasma osmolality and induce prothrombotic status subsequently, and oral contraceptives are a well known factor of increasing the incidence of venous thromboembolism. Further exploration of these aforementioned factors may be warranted.

This research contributes to the ophthalmologists’ awareness of retinal vascular disease during the COVID-19 pandemic. We recommend additional considerations regarding research design for this study and support for the need for pursuing larger longitudinal studies on this topic.

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