Comment on Eliasdottir et al., Venous oxygen saturation is reduced and variable in central retinal vein occlusion

Gokcen Gokce · Gokhan Ozge · Tarkan Mumcuoglu ·
Ali Hakan Durukan

Received: 15 December 2014 / Accepted: 23 December 2014 / Published online: 10 January 2015
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Dear Editor;

We read with great interest the study by Eliasdottir et al. describing reduced venous oxygen saturation in central retinal vein occlusion (CRVO) [1]. The authors proved that oxygen saturation in the retinal venules of eyes with CRVO is significantly reduced. We agree with the authors about the importance of oxygen imaging to evaluate CRVO. However, there is another noteworthy point that should be mentioned about the study design.

As this study was performed in a cold temperature region (Reykjavik, Iceland), the consistency of the results could have been affected. The measurement methods of the study by Eliasdottir et al. could have been affected by the weather conditions, atmosphere pressure, and hydroregulation of the body caused by cold temperature. In cold climates, the whole body is clothed with thermally controlled climatic clothing. However, the eyes are usually unprotected and are susceptible to cold injury. Although there is no study specifically designed to investigate how the human eye is affected by cold exposure, hematologic effects, such as marked platelet activation, hemoconcentration, increased adhesion of neutrophils to the endothelial wall, and increased oxidative stress secondary to cold exposure, have been previously reported [2, 3]. Furthermore, it has been shown that acute exposure to cold conditions may cause a variety of autonomic responses, including periph-

eral vasoconstriction, and an increase in blood pressure and heart rate [4]. These findings indicate that cold exposure may increase the hematologic and cardiovascular risk factors of CRVO, which may explain why venous oxygen saturation is reduced in patients with CRVO. Although little decrease in those changes is usually seen during the acclimatization process, the duration of those changes is still not exactly known for chronic cold exposure. Thrombosis has been demonstrated to be a chronic response and not an immediate reflex effect to cold exposure [3].

In conclusion, based on our experience, we suggest that chronic cold exposure, which is not mentioned in this study, might have affected the results. The study by Eliasdottir, which was performed in a cold temperature region, is considered to be more realistic in reflecting the results of individuals who live in such environments.

Disclosures None of the authors have any conflicts of interest to disclose.

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G. Gokce (✉)
Department of Ophthalmology, Kayseri Military Hospital,
Kayseri, Turkey
e-mail: drgokcengokce@gmail.com

G. Ozge · T. Mumcuoglu · A. H. Durukan
Department of Ophthalmology, Gulhane Military Medical Academy,
Ankara, Turkey