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Glaucoma Progression in the Unaffected Fellow Eye of Glaucoma Patients who Developed Unilateral Branch Retinal Vein Occlusion



EDITOR:

PARK AND ASSOCIATES¹ ARE TO BE CONGRATULATED ON their recent paper, which highlights the relationship between glaucoma and retinal vein occlusion (RVO). Glaucoma progression in the unaffected fellow eye of patients who developed unilateral branch RVO was faster than in glaucoma patients without RVO. We would just like to give an additional explanation to this interesting observation.

Both patients with glaucoma² and patients with RVO³ have significantly elevated endothelin-1 plasma concentrations. An elevated level of endothelin-1 increases the retinal venous pressure⁴ and probably also contributes to the pathogenesis of RVO.⁵ Interestingly and fitting to the findings of Park and associates,¹ retinal venous pressure in the nonaffected eye of patients with RVO is higher than in controls.⁶

Taken together, a supposed increased level of endothelin-1 may have increased the retinal venous pressure and thereby reduced the perfusion pressure. This may have increased the risk both for RVO and for glaucoma progression.

KATARZYNA KONIECZKA
Basel, Switzerland
STEPHAN FRAENKL
Bern, Switzerland

MANELI MOZAFFARIEH
Zurich, Switzerland
JOSEF FLAMMER
Basel, Switzerland

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REPLY



WE THANK KONIECZKA AND ASSOCIATES VERY MUCH FOR their interest in our manuscript.

We agree with their opinion that increased retinal venous pressure may contribute to glaucoma progression in the contralateral eyes of branch retinal vein occlusion (BRVO). In BRVO, mechanical compression of rigid arterial walls causes narrowing of the venous lumen, resulting in flow disturbance at the arteriovenous crossing site.¹ This may also lead to increased retinal venous pressure elevation and is suggested that endothelial damage and thrombus formation may occur at the arteriovenous crossing site.^{2,3}

Patients from this study were predominantly normal-tension glaucoma (NTG; 35 of 40, 87.5%). We previously reported that plasma endothelin-1 (ET-1) was elevated in NTG patients.⁴ Additionally, the level of ET-1 was associated with heart rate variability parameters that represent



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