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Retinal Blood Flow in Patients with Primary Open Angle Glaucoma and Optic Disc Hemorrhage.

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Abstract

Purpose: To investigate total retinal blood flow (TRBF) and retinal blood flow (RBF) in the superior (S) and the inferior (I) retinal hemifields in patients with primary open angle glaucoma (POAG) both with and without disc hemorrhage (DH).

Methods: RBF measurements were obtained from 10 POAG with DH (mean age 71.7, SD=7.39; 9 females) and 10 age matched POAG without DH (mean age 70, SD = 5.27; 6 females) using Doppler SD-OCT (RTVue; Optovue Inc, Fremont, CA, USA) as well as bi-directional laser Doppler flowmetry with densitometry (CLBF-100, Canon, Tokyo, Japan). TRBF measurements were compared between groups, within group for SRBF and IRBF, and for inter-ocular asymmetry (ANOVA; $p < 0.05$). Correlation between TRBF and age, and TRBF and Mean Deviation of Humphrey automated perimetry were also analyzed.

Results: Venous TRBF in the POAG with DH group ($n=10$, 27.1 $\mu\text{l}/\text{min}$, SD 7) was significantly lower than in the age-matched POAG without DH group ($n=10$, 38.83 $\mu\text{l}/\text{min}$, SD 10.66, $p=0.009$). RBF was not significantly different between the superior and inferior hemifields for either POAG with DH ($p=0.763$) or POAG without DH ($p=0.481$). In the POAG with DH group, venous TRBF was significantly lower in the DH

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eye (n=8, 28.73 μ l/min, SD 6.87) compared to the contralateral eye without DH (n=8, 38.44 μ l/min, SD 7.11, p=0.015). There was no significant difference between IOP, MD, BP, HR and MOPP between the POAG with and without DH groups. Also, there was no significant relationship between age or MD index of automated static perimetry with venous TRBF for the POAG with, and without DH group.

Conclusions: Venous TRBF was significantly lower in the POAG with DH group compared to both the POAG without DH group and the contralateral eye of the POAG with DH group. There was no within eye asymmetry when comparing SRBF and IRBF either with or without DH, or when comparing the hemifield with DH to that without.

Keywords: 436 blood supply • 550 imaging/image analysis: clinical • 627 optic disc



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