

R1 R2 R3 PG0 PG1 Estagiário Tecnólogo
PIBIC Last Name - Albuquerque First Name - Bruno Middle - Furlani

Service (sector) Glaucoma N° CEP 01509/06

Retinal Nerve Fiber Layer Thickness in Diabetic Retinopathy

B.A. Furlani, T.S. Prata, L.M. Pinto, S.A. Tanimoto, B.L. Lum, M.C. Lim, L.A.S. Melo Jr.

Purpose: To determine whether diabetic retinopathy and panretinal photocoagulation (PRP) alter the retinal nerve fiber layer (RNFL) thickness. **Methods:** Patients with diabetic retinopathy with and without panretinal photocoagulation as well as non-diabetic control subjects were enrolled in this cross-sectional study. Patients with significant ocular disease other than diabetic retinopathy were excluded. Participants underwent an ophthalmic evaluation including grading of diabetic retinopathy, optical coherence tomography (*Stratus* OCT) and scanning laser polarimetry with variable corneal compensation (GDx-VCC) to obtain RNFL thickness measurements. The OCT fast peripapillary RNFL thickness program was used to assess retinal thickness measurements. Three OCT scans of peripapillary were performed and the mean of these three measurements was used for statistical analysis. The mean of two optimal GDx image scans of each eye was used for statistical analysis. **Results:** A total of 30 healthy individuals (59 eyes) and 70 diabetic patients (113 eyes) were included in this study. On OCT, the diabetic patients with PRP treatment had thinner peripapillary RNFL thickness than those without PRP and both these groups had thinner RNFL than control subjects, especially in the inferior region. The mean (95% confidence interval) inferior average OCT RNFL thickness was 130.8 μm (126.1 - 135.7) in healthy subjects, 119.6 μm (113.6 – 125.7) in diabetic patients without PRP, and 109.1 μm (100.0 – 118.3) in diabetic patients with PRP, and these means were statistically significantly different ($P < 0.001$). On GDx, the mean (SD) overall (TSNIT) average thickness in healthy subjects was 57.4 μm (6.5), in diabetic patients without PRP was 54.6 μm (5.7), and in diabetic patients with PRP was 51.0 μm (9.2) ($P = 0.02$). **Conclusions:** RNFL is thinner in diabetic patients treated with PRP when compared to patients with diabetic retinopathy without PRP and to healthy subjects. This thinning of the RNFL may result from axonal degeneration caused by PRP as well as from progression of diabetic retinopathy and merits further investigation.