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Service (sector) Glaucoma - Retina N° CEP

Reducing the Variability of Retinal Nerve Fiber Layer Thickness in Optical Coherence Tomography using Total Retinal Thickness Measurement

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Purpose: To determine whether the use of relative retinal nerve fiber layer (RNFL) thickness measurement reduces the between-subject variability in comparison with the absolute RNFL thickness measurement. **Material and Methods:** A total of 14 healthy individuals (28 eyes; normal group) and 16 glaucomatous patients (26 eyes; glaucoma group) were included in this study. The patients had best-corrected visual acuity of 20/60 or better, no significant media opacity or other significant ocular disease except glaucoma (in the glaucoma group). Peripapillary RNFL and total retinal thickness measurements were obtained by optical coherence tomography (*Stratus* OCT) using circles with radii of 1.4 mm, 1.8 mm and 2.2 mm centered on the optic disc. For each circle, measurements of the RNFL and total retinal thickness were obtained at four different locations (inferotemporal, superotemporal, inferonasal and superonasal quadrants). The relative RNFL thickness were calculated by the ratio of the RNFL to total retinal thickness. **Results:** In all the quadrants and distances from the optic disc center, the relative RNFL thickness had lower between-subject variability (lower coefficient of variation) when compared with the absolute RNFL thickness. This reduction in RNFL thickness variability occurred in both normal and glaucoma groups. However, this reduction in variability did not increase the ability to discriminate between normal and glaucomatous individuals when the receiver operating characteristics curve areas of relative and absolute RNFL thickness measurements were compared. **Conclusions:** The relative RNFL thickness has lower between-subject variability than absolute RNFL thickness in healthy and glaucomatous individuals. However, this lower variability does not help to increase the discrimination between healthy and glaucomatous individuals. μm), 42.8 μm (16.7 μm) and 28.0 μm (16.8 μm), respectively ($P < 0.001$ for all comparisons). The mean (SD) differences between OCT and GDx measurements in the glaucomatous patients at 1.4-mm, 1.8-mm and 2.2-mm radius circles were 42.41 μm (12.0 μm), 30.8 μm (11.5 μm) and 24.3 μm (11.4 μm), respectively ($P < 0.001$ for all comparisons). **Conclusions:** There is a poor agreement between OCT and GDx RNFL thickness measurements. The RNFL thickness obtained using OCT is thicker than GDx measurements in healthy and glaucomatous patients.