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Inter-ocular asymmetry of retinal parameters as measured with ocular coherence tomography (OCT) in a sample of healthy young adults

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Optical coherence tomography (OCT) is a useful non-invasive technique to assess the retina without the need for pupil dilation. In particular, the macular and optic disc areas may be explored in detail and with a high level of spatial resolution. A transversal study was designed in which a spectral-domain 3D-OCT-2000 (Topcon, Inc., Barcelona, Spain) was employed to evaluate several retinal parameters in a sample of 37 young Caucasian adults aged between 12 and 23 years (spherical equivalent from -3.00 to +4.00 D). Normal inter-ocular asymmetry values were determined and 95% inter-ocular difference tolerance values were obtained. Inter-ocular statistically significant differences were uncovered in mean and superior RNFL thickness, as well as in central macular thickness with larger values in the left eye in all instances and with tolerance limits of inter-ocular asymmetry (2.5th and 97.5th percentiles) of -9.00 μ m to 6.00 μ m, -28.00 μ m to 9 μ m and -39.00 μ m to 29.00 μ m, respectively. In addition, statically significant differences were found between males and females in mean thickness of the retinal nerve fiber layer (RNFL) in the right eye. These findings give support to the exploration of the normal asymmetries of the retina as an effective approach for an early detection of pathologies such as glaucoma. Differences in instrumentation and sample characteristics compromise direct comparison with published research and warrant the need for further studies.

Biography

Zeyad Abedalmuttaleb Zeyad Alzaben has received his Bachelor's degree in Optometry (2013) at the Jordan University of Science & Technology (JUST) and the first MSc degree in Science of Vision and Optometry (2014) at the Universitat Politècnica de Catalunya (UPC) and second MSc degree in Visual Rehabilitation (2014) at Universida de Valladolid (UVa), Medicine Faculty and he is currently a PhD candidate in Optical Engineering doctoral program at Universitat Politècnica de Catalunya (UPC). He is currently employed as full-time Optometrist at the Department of Low Vision of Optipunt Eye Clinic.

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