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Impact of Myopia on Macular Thickness: An Optical Coherence Tomography Study of Young Sudanese

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Aim: To investigate the changes in macular thickness of myopic eyes using spectral domain optical coherence tomography (OCT).

Methods: A prospective cross-sectional study was performed in hundred young Sudanese patients (15-30 years) with myopia in period from June to December 2015 at Makkah Eye complex, Khartoum, Sudan. Patients were divided into three groups according to their refractive error and axial length: low and medium myopia (LMM), high myopia (HM) and super high myopia (SHM). A comprehensive ophthalmic examinations were performed; including measurement of visual acuity, refraction, and axial length. Subjects with ophthalmic abnormalities were excluded. Thus, Carl Zeiss OCT was used to evaluate total macular thickness, foveal thickness, parafoveal and perifoveal thickness and macular volume. The differences among experimental groups were analyzed by one-factor analysis of variance. However, associations between macular thickness and refractive error/axial length were analyzed by Pearson's correlation analysis.

Results: The study revealed that there was no significant difference in age among the three groups ($p=0.278$). The mean of refractive error in the LMM, HM, and SHM was $-3.11 \pm 1.20D$, $-7.49 \pm 1.03D$ and $-16.58 \pm 5.00D$, respectively ($p < 0.001$). The foveal thickness of the three groups was $236.38 \pm 20.80 \mu m$, $245.43 \pm 29.55 \mu m$ and $258.93 \pm 32.38 \mu m$, respectively, and there were statistically significance between the groups. In addition, the total macular thickness, parafoveal and perifoveal thickness, and macular volume decreased with increased myopia and axial length. Whereas foveal thickness has negative correlations with refractive error and axial length ($p < 0.001$).

Conclusion: When myopia and axial length increase the foveal thickness increase. In contrast parafoveal, perifoveal and total macular thickness decreased. Also the macular volume decreased.

Biography

Raghda Faisal is a student of optometry at Alneelain University, Sudan. She has published articles in several journals, international experience includes various programs, contributions and participation in different countries for diverse fields of Optometry. Her research interests reflect in her wide range of publications in various national and international journals

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