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MACULAR AND RETINAL NERVE FIBER LAYER ANALYSIS BY OPTICAL COHERENCE TOMOGRAPHY IN NORMAL CHILDREN

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This study aims to evaluate macular and peripapillary retinal nerve fiber layer measurements in normal children and their correlation with age, gender, laterality, refraction and axial length

Methods: This was an observational cross sectional study among 100 eyes of 50 child (25 boys, 25 girls) aged between 6 and 17 years. After detailed eye examination and axial length measurements, the children were scanned using swept source optical coherence tomography (3D DRI OCT Triton [plus], Topcon Corporation, Tokyo, Japan) to measure macular thickness, macular volume, peripapillary RNFL thickness and optic disc parameters.

Results: Both eyes of fifty child were included in the study. Mean age was 10.96 ± 2.75 years, average spherical equivalent refraction (SE) was 0.78±1.65 (−4.50 to +5.00) diopters and average axial length was 22.87 ± 0.90 (20.99 to 24.67) mm. Average macular thickness was 276.41±17.8 µm, central macular thickness was 225.26±20.79 µm, mean macular volume was 7.84±0.48 mm3 and mean peripapillary RNFL thickness was 111.26±20.46 µm. Axial length showed positive correlation with age unlike negative correlation with spherical equivalent. It also showed negative correlation with mean average RNFL thickness. Most of the parafoveal region quadrants correlated positively with age unlike RNFL measurements that correlated negatively. Central macular thickness values were significantly higher in males (p=0.001) but there was no difference between male and female as regard RNFL thickness. Spherical equivalent didn't show significant effect on studied parameters. Concerning the side of the eye, it had no statistically significant difference between both eyes but good correlation.

Conclusion: Normative paediatric SS-OCT data might facilitate use of SS-OCT for assessing childhood ophthalmic diseases. This study provides a paediatric normative database of SS-OCT peripapillary RNFL and macular data.

Note: