

OCT Angiography Changes in The Fellow Eye of Unilateral Primary Congenital Glaucoma

Thesis

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Abstract

Purpose: To study the fellow eye of unilateral congenital glaucoma (PCG) patients with optical coherence tomography angiography (OCT-A), comparing them to the normal age-matched controls.

Design: prospective cross-sectional study.

Patients and Methods: Thirty two cases with unilateral congenital glaucoma in group A and 32 normal controls in group B were recruited in the study with age 4 – 14 years old. Both groups were investigated by OCT-A comparing Foveal avascular zone (FAZ) area, Central macular thickness (CMT), Cup to disc (CD) ratio, Retinal nerve fiber layer (RNFL) thickness, Choroidal thickness (CT), Vessel density (VD) in the Superficial vascular complex (SVC) and Deep vascular complex (DVC) in both 3mm and 6 mm scans, and VD of optic nerve head and peripapillary area.

Results: Sixty four eyes were included in the study with age range 4-14 years for both groups. Equal sex distribution in group B, while group A had 22 (68.8%) males. The CD ratio was higher in group A compared to group B (range 0.13 ± 0.14 in A and 0.07 ± 0.09 in B p-value 0.039). Mean RNFL thickness was 113.81 ± 15.4 μm and 117.41 ± 13.19 μm in group A and B respectively. Mean CT in group A was 396.81 ± 39.98 μm and 375.34 ± 41.72 μm in group B (P-value 0.04). Mean CMT was 235.69 ± 17.96 in group A and 234.16 ± 15.2 in group B. The FAZ area was smaller in group A ($0.3\pm 0.1\text{mm}^2$) than group B ($0.35\pm 0.13\text{mm}^2$) (p-value 0.093). The VD at fovea in group A in 3mm scan was ($19.41\pm 6.88\%$) and group B was ($15.95\pm 5.87\%$) (p-value 0.034). The VD in the superficial whole image in 6mm scan was lesser in group A ($49.42\pm 2.58\%$) than group B ($50.74\pm 2.6\%$) (p-value 0.045). Both cases and controls were not significantly different regarding the VD at the disc area.

Conclusion: The fellow eye of unilateral PCG cases are not entirely normal with less vascular density by OCT-A and needs long term follow up.