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Retinal nerve fibre layer thickness and CD4 count in HIV positive patients: a cross-sectional study

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Abstract

Background/Objectives: HIV Associated Neuroretinal Disorder (HIV-NRD) has been reported in HIV positive patients on anti-retroviral drugs, with a normal appearing fundus. Retinal Nerve Fibre layer (RNFL) changes have been reported in patients with CD4 counts below 100 cells/µL. Conversely, other studies have reported thickening of the RNFL, while some have found no difference in RNFL thickness between HIV positive patients and HIV negative controls. We assessed the difference in RNFL thickness between HIV positive patients compared to HIV negative controls.

Subjects/Methods: This study was a single centre, cross-sectional study. We recruited 143 participants. Fifty-eight were HIV (+) patients with CD4 count above 100 cells/µL, 19 HIV (+) with a CD4 below 100 cells/µL and 66 HIV negative controls. Spectral - Domain OCT was used to measure the peripapillary RNFL. All HIV positive patients had a CD4 count and viral load on the day of presentation.

Results: We found no statistically significant difference in the global mean (SD) RNFL thickness in HIV positive patients 109.9 µm (13.5) (95% CI: 106.8 -112.9) when compared to HIV negative controls 110.4 µm (11.8) (95% CI: 107.4 – 113.2); p = 0.8. We did however find a statistically significant decrease in mean global RNFL thickness of 4.1µm with every 10 000 copies increase in viral load; p= 0.01

Conclusion: RNFL thickness is similar in HIV positive patients when compared to HIV negative controls especially at CD4 counts above 100 cells/µL. The risk of RNFL thinning is increased at higher viral loads.