

TO EVALUATE THE RETINAL NERVE FIBRE LAYER LOSS IN OPTIC NEURITIS USING SPECTRAL DOMAIN OPTICAL COHERENCE TOMOGRAPHY

PURPOSE:

To assess the retinal nerve fibre layer loss in optic neuritis patients using Spectral Domain Optical Coherence Tomography (SDOCT- Heidelberg Engineering software version 5.4.6).

METHODS

The study participants included 20 patients clinically diagnosed to have optic neuritis. These 20 patients with optic neuritis SDOCT imaging was done between 3 months to 1 year period.

This study was conducted from January 2013 to May 2014. All these patients were selected from patients attending Neuro ophthalmology clinic who were diagnosed to have optic neuritis. The patients with optic neuritis who were included in our study were treated according to ONTT guidelines. The RNFL analysis uses an automated

OCT algorithm to identify retinal nerve fibre layer. SDOCT imaging was done in both affected and unaffected eyes. Retinal nerve fibre assessment done in six quadrants namely superotemporal, superonasal, inferotemporal, inferonasal, nasal, temporal and average of all six quadrants. Retinal nerve fibre layer thickness of affected eye compared with unaffected eye and also with normative data of device.

RESULTS:

RNFL thickness in average of all quadrant of affected eye ($80.77\mu\text{m}$) with unaffected eye ($97.92\mu\text{m}$) showed significant RNFL loss (p value= 0.031). Comparing the unilaterally affected eye with normative data of device, unilaterally affected eye ($80.77\mu\text{m}$) compared to normative data of device ($98.00\mu\text{m}$) which showed a significant reduction in RNFL thickness (p value = 0.031). In case of bilaterally affected eyes ($67.71\mu\text{m}$) with normative data

(98.43 μ m) showed a clinically significant reduction of RNFL thickness (p value = <0.001). The presenting visual acuity was divided into better than 6/18 and worse than 6/18. Presenting visual acuity was associated with average nerve fibre layer loss, but couldn't get statistical significant results (beta coefficient = -10.00, p value = 0.357 using regression analysis).

CONCLUSIONS:

From our study, spectralis SDOCT is an effective and convenient device in calculating the retinal nerve fibre layer thickness. It is useful in quadrant wise nerve fibre layer assessment.

Retinal nerve fibre layer assessment may helps in predicting the recovery of vision after optic neuritis. Lower the retinal nerve fibre layer thickness correlates with the poor visual function. Spectral domain optical coherence tomography have a major role as a surrogate marker for better assessment of integrity of axons in patients with optic neuritis. Progression of RNFL loss in optic neuritis yet to be studied with long term follow ups with the help of SDOCT.

KEY WORDS : Optic neuritis, retinal nerve fibre layer, spectral domain optical coherence tomography.