

## **The Potential Impact of Migraine Headache on Retinal Nerve Fiber Layer Thickness**

Background: Migraine is a common, chronic, multifactorial neurovascular disorder. It may result in hypoperfusion of other areas other than the brain, as the eye. It may lead to change of the retinal nerve fiber layers (RNFL) thickness and axonal loss even up to severe damage of the eye structures, including the retina with frequent headache attacks.

This study aimed to quantify the thickness of RNFL which gives a good idea about the condition of axons and loss of ganglion cells in migraine patients. Also, to detect if there is any correlation between these measurements and clinical characteristics of migraine.

Results: The RNFL thickness was significantly thinner in patients with migraine compared to healthy controls in all quadrants of retina in both sides ( $p$  value $<0.05$ ). However, there was no significant difference in RNFL thickness in migraine patients with aura compared to patients without aura in all retinal quadrants in both sides ( $p$  value $>0.05$ ). The headache intensity was negatively correlated with RNFL thickness in the inferior ( $r=-0.342$ ,  $P=0.031$ ) and nasal ( $r=-0.349$ ,  $P=0.027$ ) quadrants on LT side, also there was a significant positive correlation between RNFL thickness and both of nausea and tolerability in the RT superior quadrant ( $r=0.467$ ,  $P=0.002$ ); ( $r=0.322$ ,  $P=0.043$ ), respectively, but there was no significant correlation found between the RNFL thickness and disability, attacks duration, disease duration and frequency in all retinal quadrants on both sides ( $P>0.05$ ).

Conclusion: The main conclusion of our work was that RNFL thickness was significantly affected in migraine patients in comparison to healthy controls, but there were no significant impact of the migraine characteristics including aura, severity, frequency, or duration of headache attacks on RNFL thickness