

INTRODUCTION

The mean prevalence of high myopia increases over time in Egypt Prevalence of high myopia in Egypt which was 0.2%, in 1960 increased to 7.4% in 1976 and 10.8% in 2015. Optical coherence tomography (OCT) is a noninvasive, painless and quick precise technology that can be used for interpreting tissue structure and function. Time-domain OCT was fast enough to scan a circle centered on the optic nerve head (circumpapillary) to assess the retinal nerve fiber layer (RNFL) thickness. Glaucoma Module Premium Edition (GMPE) is a new, objective method of ONH analysis using BMO. The termination of Bruch's membrane at the ONH marks the opening through which RGC axons exit the eye to form the choroidal and scleral portions of the neural canal, this anatomic opening, termed Bruch's membrane opening (BMO). The minimum distance from the BMO to the internal limiting membrane represents the most geometrically accurate measurement of neuroretinal rim width. This neuroretinal rim measurement has been termed Bruch's Membrane Opening-Minimum Rim Width (BMO-MRW).

AIM OF THE WORK

The main objective of the study was to evaluate the nerve fiber layer in myopic eyes as detected by optical coherence tomography using the most recent hardware and software available at the time of the study in Alexandria University Teaching Hospital.

PATIENTS AND METHODS

Patients: The study included 90 myopic eyes that were selected randomly from 90 patients (one eye from each patient) Inclusion criteria: Non-operated, phakic myopic eyes, and Age from 18 to 40 years, Exclusion criteria: Previous ocular surgeries Patients suffering from eye pathologies, Diabetics and hypertensives. Patients were divided into three groups, 30 patients in each group: mild(less or equal to -4 D), moderate(than -4 D to -8 D) and high(more than -8 D). **Methods:** Patient was subjected to the following: Detailed history taking, uncorrected visual acuity and best corrected visual acuity and measuring the intraocular pressure OCT Retinal nerve fiber layer protocol: Three circles scan centered on the optic nerve head (3.5 ,4.1and 4.7circles diameter) to evaluate the retinal nerve fiber layer thickness.

RESULTS

Table : Comparisons between the circumpapillary retinal nerve fiber layer thickness measurement circles (3.5 and 4.1 mm) in the mild myopic group.

RNFL sectors	Mild (n = 30)			
	Group 1 (non tilted discs n = 22)		Group 2 (tilted discs n = 8)	
	RNFL 3.5	RNFL 4.1	RNFL 3.5	RNFL 4.1
Nasal				
Min. – Max.	89.0 – 183.0	38.0 – 182.0	92.0 – 187.0	75.0 – 184.0
Mean ± SD.	106.27 ± 19.34	84.23 ± 26.14	123.87 ± 38.35	97.38 ± 35.60
Median (IQR)	100.0 (97.0–109.0)	81.50 (68.0–93.0)	110.0 (97.50–148.50)	89.0 (79.50–91.50)
t (p)	7.488(<0.001*)		2.701(0.031*)	
Nasal Inferior				
Min. – Max.	76.0 – 180.0	21.0 – 139.0	85.0 – 249.0	71.0 – 200.0
Mean ± SD.	130.0 ± 25.79	102.45 ± 24.36	138.25 ± 48.62	108.87 ± 38.97
Median (IQR)	130.5 (112.0–149.0)	101.0 (94.0–119.0)	127.0 (115.5–143.5)	101.0 (90.50 – 108.5)
t (p)	4.972(<0.001*)		7.361 (<0.001*)	
Nasal Superior				
Min. – Max.	28.0 – 187.0	27.0 – 171.0	125.0 – 193.0	89.0 – 129.0
Mean ± SD.	128.77 ± 32.92	103.68 ± 28.44	139.25 ± 22.82	103.37 ± 12.43
Median (IQR)	128.5 (111.0–158.0)	99.0 (90.0 – 128.0)	130.0 (126.5–141.5)	100.50 (95.50–108.5)
t (p)	5.428(<0.001*)		6.826(<0.001*)	
Temporal				
Min. – Max.	61.0 – 99.0	55.0 – 95.0	75.0 – 99.0	65.0 – 87.0
Mean ± SD.	76.55 ± 10.04	69.18 ± 10.79	82.13 ± 8.84	72.38 ± 7.21
Median (IQR)	75.0 (70.0 – 84.0)	66.0 (63.0 – 75.0)	78.50 (75.0 – 88.0)	71.50 (66.50 – 75.50)
T(p)	4.388(<0.001*)		3.426(0.011*)	
Temporal Inferior				
Min. – Max.	57.0 – 205.0	75.0 – 186.0	137.0 – 231.0	126.0 – 187.0
Mean ± SD.	159.23 ± 31.16	141.68 ± 26.93	176.0 ± 29.93	153.63 ± 19.05
Median (IQR)	161.0 (144.0–183.0)	144.5 (124.0–157.0)	167.5 (157.0–195.5)	153.5 (141.0 – 163.5)
t (p)	4.041(0.001*)		4.702(0.002*)	
Temporal Superior				
Min. – Max.	89.0 – 185.0	61.0 – 164.0	112.0 – 200.0	99.0 – 175.0
Mean ± SD.	143.50 ± 26.58	123.64 ± 26.38	148.88 ± 31.53	130.25 ± 26.32
Median (IQR)	147.0 (130.0–163.0)	130.0 (102.0–138.0)	146.0 (122.5–171.0)	120.0 (112.5 – 151.5)
t (p)	4.430(<0.001*)		1.884(0.102)	
Average				
Min. – Max.	101.0 – 156.0	87.0 – 135.0	100.0 – 124.0	85.0 – 106.0
Mean ± SD.	117.0 ± 15.30	97.14 ± 10.6	111.13 ± 8.32	93.63 ± 7.44
Median (IQR)	113.0 (106 – 121)	94.0 (91 – 100)	112.0 (103.5 – 117	92.0 (88 – 99)
t (p)	9.866(<0.001*)		6.375(<0.001*)	

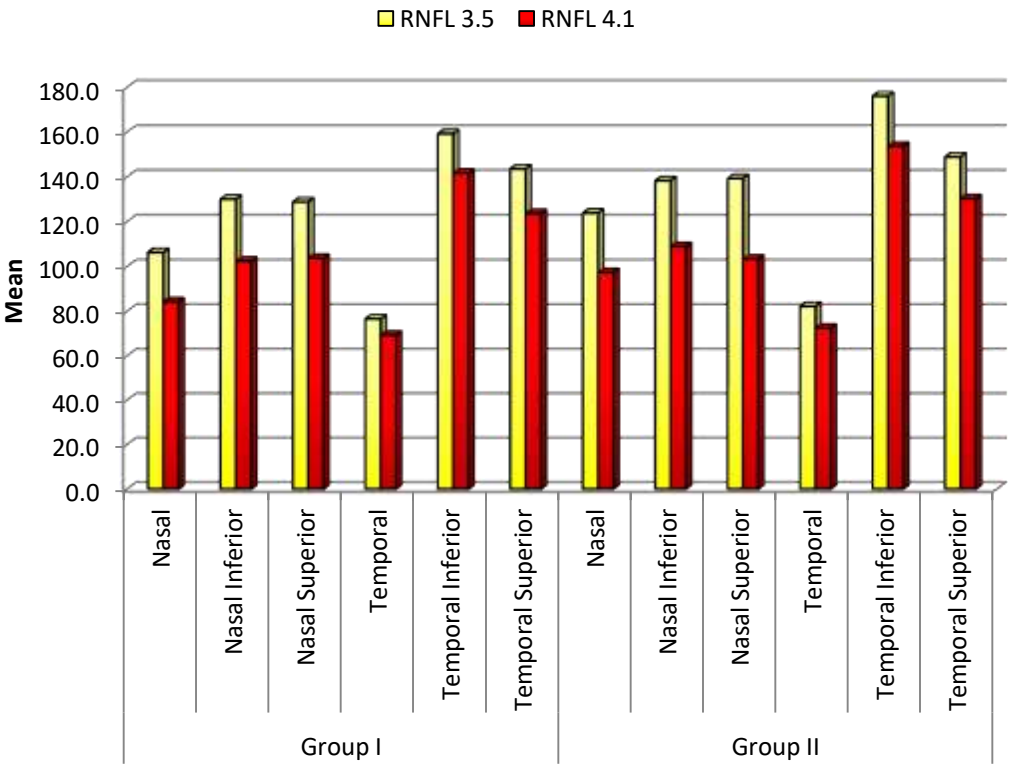


Figure: Comparison between 3.5 and 4.7 circumpapillary RNFLT measurement circles in the mild group

CONCLUSION

The circumpapillary RNFL was significantly thinner in 4.1 mm circle compared to 3.5 mm circle in the mild, moderate and high myopic cases. Although, the circumpapillary RNFL was significantly thinner in 4.7 mm circle compared to 4.1 mm circle in the mild moderate and high myopic cases. Further studies are needed with larger scale of patients to better evaluate the Heidelberg new software (GMPE) in cases of myopia with tilted discs and the cases with PPA.