

Table 1: Univariable analysis of demographic risk factors for being a fast structural progressor

	levels	# of eyes	# of fast progressors (%)	OR (95% CI)	P value
Age (years)	<=60	304	87 (28.62%)	Ref	0.304
	(60,70]	415	122 (29.40%)	1.05 (0.75,1.47)	
	>70	609	154 (25.29%)	0.84 (0.61,1.16)	
	Missing	96	26 (27.08%)	-	
Age (per 10 year increase)				0.88 (0.78,0.99)	0.033
Sex	Male	648	176 (27.16%)	Ref	0.934
	Female	772	211 (27.33%)	1.01 (0.79,1.29)	
	Missing	4	2 (50.00%)	-	
BMI group	< 25	262	72 (27.48%)	Ref	0.949
	25-30	466	132 (28.33%)	1.04 (0.74,1.47)	
	>=30	563	154 (27.35%)	0.99 (0.72,1.38)	
	Missing	133	31 (23.31%)	-	
BMI (per 1 kg/m ² increase)				1.00 (0.98,1.02)	0.807
Diabetes	No	735	212 (28.84%)	Ref	0.266
	Yes	558	145 (25.99%)	0.86 (0.67,1.12)	
	Missing	131	32 (24.43%)	-	
Hypertension	No	228	67 (29.39%)	Ref	0.509
	Yes	1067	290 (27.18%)	0.90 (0.65,1.23)	
	Missing	129	32 (24.81%)	-	
Family glaucoma history	No	487	146 (29.98%)	Ref	0.207
	Yes	713	189 (26.51%)	0.84 (0.65,1.10)	
	Missing	224	54 (24.11%)	-	
Alcohol use	No	569	148 (26.01%)	Ref	0.264
	Yes	661	191 (28.90%)	1.16 (0.89,1.50)	
	Missing	194	50 (25.77%)	-	
Tobacco use	No	538	143 (26.58%)	Ref	0.557
	Yes	694	195 (28.10%)	1.08 (0.83,1.40)	
	Missing	192	51 (26.56%)	-	
Previous glaucoma surgery	No	895	257 (28.72%)	Ref	0.301
	Yes	383	99 (25.85%)	0.86 (0.65,1.15)	
	Missing	146	33 (22.60%)	-	
<i>LMX1B</i>	GC	27	8 (29.63%)	Ref	0.64

	GG	1127	297 (26.35%)	0.85 (0.45, 1.61)	
	Missing	270	84 (31.11%)	-	
<i>TRIM66</i>	TC	146	40 (27.40%)	Ref	0.83
	TT	1004	264 (26.29%)	0.95 (0.62, 1.46)	
	Missing	274	85 (31.02%)	-	

OR=odds ratio; CI=confidence interval; BMI=body mass index

Table 2: Univariable analysis of ocular risk factors for being a fast structural progressor

	# of eyes	# of fast progressors (%)	OR (95% CI)	P value
CCT (per 10 μ m/increase)	1228	323 (26.30%)	1.02 (0.98,1.05)	0.318
CDR (per 0.1 increase)	863	217 (25.14%)	0.76 (0.70,0.83)	<.001
IOP (per 1 mmHg increase)	1148	294 (25.61%)	1.00 (0.98,1.02)	0.940
MD (per 1 dB increase)	1004	243 (24.20%)	1.08 (1.05,1.11)	<.001
PSD (per 1 dB increase)	1001	242 (24.18%)	0.84 (0.80,0.89)	<.001
RNFL (per 10 μ m/increase)	1424	389 (27.32%)	2.65 (2.35,3.00)	<.001
VA (per 0.1 logMAR increase)	727	178 (24.48%)	0.96 (0.88,1.06)	0.426

OR=odds ratio; CI=confidence interval; CCT=central corneal thickness; CDR=cup-to-disc ratio; IOP=intraocular pressure; MD=mean deviation; PSD=pattern standard deviation; RNFL=retinal nerve fiber layer thickness; VA=visual acuity

Table 3: Univariable analysis of qualitative phenotype risk factors for being a fast structural progressor

		# of eyes	# of fast progressors (%)	OR (95% CI)	P value
Disc shape	Round	243	60 (24.69%)	Reference	0.402
	Oval	237	72 (30.38%)	1.34 (0.88,2.04)	
	Missing	944	257 (27.22%)	1.13 (0.81,1.58)	
Disc Size	Recorded	482	132 (27.39%)	Reference	0.907
	Missing	942	257 (27.28%)	0.98 (0.76,1.27)	
Shape of cup	Conical	156	47 (30.13%)	Reference	0.438
	Cylindrical	256	69 (26.95%)	0.86 (0.54,1.35)	
	Bean Pot	62	12 (19.35%)	0.57 (0.28,1.15)	
	Missing	950	261 (27.47%)	0.87 (0.59,1.27)	
Cup Depth	Shallow	54	16 (29.63%)	Reference	0.702
	Moderate	315	89 (28.25%)	0.93 (0.48,1.77)	
	deep	110	25 (22.73%)	0.71 (0.34,1.48)	
	Missing	945	259 (27.41%)	0.88 (0.47,1.67)	
Rim plane position constant through 360	No	69	16 (23.19%)	Reference	0.657
	Yes	410	114 (27.80%)	1.33 (0.70,2.52)	
	Missing	945	259 (27.41%)	1.28 (0.70,2.35)	
Beta PPA	No	157	36 (22.93%)	Reference	0.239
	Yes	325	96 (29.54%)	1.43 (0.93,2.20)	
	Missing	942	257 (27.28%)	1.26 (0.85,1.87)	
Tilted disc	No	441	121 (27.44%)	Reference	0.984
	Yes	41	11 (26.83%)	0.95 (0.44,2.06)	
	Missing	942	257 (27.28%)	0.98 (0.75,1.28)	
Disc hemorrhage	No	475	130 (27.37%)	Reference	0.993
	Yes	7	2 (28.57%)	1.03 (0.19,5.70)	
	Missing	942	257 (27.28%)	0.99 (0.76,1.28)	
Arteriole narrowing	No	473	131 (27.70%)	Reference	0.389
	Yes	9	1 (11.11%)	0.31 (0.03,2.84)	
	Missing	942	257 (27.28%)	0.97 (0.75,1.26)	
Venule narrowing	No	475	129 (27.16%)	Reference	0.730
	Yes	7	3 (42.86%)	1.99 (0.44,8.95)	
	Missing	942	257 (27.28%)	1.00 (0.77,1.29)	

Baring of the lamina cribrosa	No	128	50 (39.06%)	Reference	0.007
	Yes	354	82 (23.16%)	0.48 (0.32,0.73)	
	Missing	942	257 (27.28%)	0.59 (0.40,0.86)	
Baring of the circumlinear vessels	No	340	90 (26.47%)	Reference	0.843
	Yes	141	41 (29.08%)	1.14 (0.73,1.79)	
	Missing	943	258 (27.36%)	1.04 (0.77,1.39)	
Vessels overpass	No	471	129 (27.39%)	Reference	0.654
	Yes	7	1 (14.29%)	0.43 (0.05,3.97)	
	Missing	946	259 (27.38%)	0.99 (0.76,1.28)	
Bayonetting	No	319	91 (28.53%)	Reference	0.648
	Yes	134	31 (23.13%)	0.76 (0.47,1.21)	
	2	26	8 (30.77%)	1.15 (0.48,2.74)	
	Missing	945	259 (27.41%)	0.94 (0.70,1.26)	
Nasalization of the vessels	No	308	95 (30.84%)	Reference	0.067
	Yes	174	37 (21.26%)	0.61 (0.39,0.93)	
	Missing	942	257 (27.28%)	0.83 (0.62,1.11)	
Cilio-retinal vessels	No	381	110 (28.87%)	Reference	0.298
	Yes	101	22 (21.78%)	0.68 (0.41,1.13)	
	Missing	942	257 (27.28%)	0.91 (0.70,1.20)	
Gray crescent	No	445	124 (27.87%)	Reference	0.722
	Yes	37	8 (21.62%)	0.72 (0.32,1.66)	
	Missing	942	257 (27.28%)	0.96 (0.74,1.25)	
Conus pigmentosus	No	434	122 (28.11%)	Reference	0.440
	Yes	48	10 (20.83%)	0.67 (0.35,1.29)	
	Missing	942	257 (27.28%)	0.95 (0.73,1.24)	
Notching of neural rim	No	449	126 (28.06%)	Reference	0.111
	Yes	30	4 (13.33%)	0.39 (0.13,1.14)	
	Missing	945	259 (27.41%)	0.96 (0.74,1.24)	
Pallor of the neural rim	No	475	131 (27.58%)	Reference	0.727
	Yes	7	1 (14.29%)	0.48 (0.06,3.67)	
	Missing	942	257 (27.28%)	0.98 (0.75,1.26)	

OR=odds ratio; CI=confidence interval

Table 4: Univariable analysis for demographic risk factors for increasing RNFL progression rate

	Levels	# of eyes	Rate of RNFL progression ($\mu\text{m}/\text{y}$) Mean (SE)	Difference (95% CI)	P-value
Age group	<=60	304	-1.71 (0.09)	Reference	0.83
	(60,70]	415	-1.65 (0.05)	0.06 (-0.15,0.27)	
	>70	609	-1.65 (0.05)	0.06 (-0.14,0.26)	
	missing	96	-	-	
Age at enrollment (per 1 year increase)				0.00 (-0.00,0.01)	0.44
sex	Male	648	-1.71 (0.07)	Reference	.032
	Female	772	-1.64 (0.03)	0.08 (-0.07,0.22)	
	NA	4	-	-	
BMI group (kg/m^2)	< 25	262	-1.64 (0.07)	Reference	0.16
	25-30	466	-1.60 (0.04)	0.03 (-0.12,0.19)	
	>=30	563	-1.75 (0.06)	-0.11 (-0.29,0.06)	
	missing	133	-	-	
BMI (per 1 kg/m^2 increase)				-0.01 (-0.02,0.00)	0.22
Diabetes	No	735	-1.69 (0.05)	Reference	.044
	Yes	558	-1.64 (0.05)	0.05 (-0.08,0.18)	
	NA	131	-	-	
Hypertension	No	228	-1.68 (0.07)	Reference	.086
	Yes	1067	-1.67 (0.04)	0.01 (-0.14,0.16)	
	NA	129	-	-	
Family glaucoma history	No	487	-1.73 (0.07)	Reference	.027
	Yes	713	-1.64 (0.04)	0.09 (-0.07,0.25)	
	NA	224	-	-	
Alcohol use	No	569	-1.63 (0.03)	Reference	.014
	Yes	661	-1.71 (0.04)	-0.08 (-0.18,0.03)	
	NA	194	-	-	
Tobacco use	No	538	-1.66 (0.04)	Reference	.073
	Yes	694	-1.68 (0.04)	-0.02 (-0.12,0.09)	
	NA	192	-	-	
Previous glaucoma surgery	No	895	-1.70 (0.03)	Reference	.050
	Yes	383	-1.64 (0.08)	0.06 (-0.11,0.23)	
	NA	146	-	-	

<i>LMX1B</i>	GC	27	-1.39 (0.31)	Reference	.
	GG	1127	-1.68 (0.04)	-0.29 (-0.90,0.32)	0.36
	missing	270	-	-	.
<i>TRIM66</i>	TC	146	-1.77 (0.19)	Reference	.
	TT	1004	-1.65 (0.03)	0.11 (-0.26,0.48)	0.55
	missing	274	-	-	.

RNFL=retinal nerve fiber layer; CI=confidence interval; BMI=body mass index

Table 5: Univariable analysis of clinical risk factors of increasing RNFL progression rate

	# of eyes	Regression Coefficient for rate of RNFL change (95% CI)	P-value
CCT (per 10 μm /increase)	1228	-0.00 (-0.02,0.01)	0.766
CDR (per 0.1 increase)	863	0.12 (0.08,0.16)	<.001
IOP (per 1 mmHg increase)	1148	-0.00 (-0.02,0.01)	0.622
MD (per 1 dB increase)	1004	-0.04 (-0.05, -0.03)	<.001
PSD (per 1 dB increase)	1001	0.09 (0.06,0.11)	<.001
RNFL (per 10 μm /increase)	1424	-0.54 (-0.60, -0.47)	<.001
VA (per 0.1 logMAR increase)	727	0.03 (0.01,0.06)	0.007

OR=odds ratio; CI=confidence interval; CCT=central corneal thickness; CDR=cup-to-disc ratio; IOP=intraocular pressure; MD=mean deviation; PSD=pattern standard deviation; RNFL=retinal nerve fiber layer thickness; VA=visual acuity

Table 6: Univariable analysis for qualitative phenotypes risk factors of increasing RNFL progression rate

		# of eyes	Rate of RNFL progression (um/y) Mean (SE)	Difference (95% CI)	P value
Disc shape	Round	243	-1.54 (0.05)	Reference	0.004
	Oval	237	-1.80 (0.05)	-0.26 (-0.41, -0.11)	
	Missing	944	-1.67 (0.05)	-0.13 (-0.28,0.01)	
Disc Size	Abnormal	3	-1.46 (0.20)	Reference	0.742
	Normal	479	-1.67 (0.03)	-0.21 (-0.61,0.19)	
	Missing	942	-1.67 (0.05)	-0.22 (-0.63,0.19)	
Shape of cup	Conical	156	-1.66 (0.05)	Reference	0.695
	Cylindrical	256	-1.71 (0.05)	-0.05 (-0.20,0.10)	
	Bean Pot	62	-1.56 (0.11)	0.10 (-0.15,0.34)	
	Missing	950	-1.67 (0.05)	-0.01 (-0.15,0.14)	
Cup Depth	Shallow	54	-1.59 (0.09)	Reference	0.692
	Moderate	315	-1.70 (0.04)	-0.11 (-0.29,0.08)	
	deep	110	-1.64 (0.07)	-0.05 (-0.27,0.16)	
	Missing	945	-1.67 (0.05)	-0.08 (-0.28,0.11)	
Rim plane position constant through 360	No	69	-1.70 (0.07)	Reference	0.900
	Yes	410	-1.66 (0.04)	0.04 (-0.12,0.20)	
	Missing	945	-1.67 (0.05)	0.03 (-0.14,0.20)	
Beta PPA	No	157	-1.52 (0.06)	Reference	0.014
	Yes	325	-1.74 (0.04)	-0.22 (-0.36, -0.08)	
	Missing	942	-1.67 (0.05)	-0.15 (-0.31, -0.00)	
Tilted disc	No	441	-1.65 (0.04)	Reference	0.502
	Yes	41	-1.80 (0.11)	-0.14 (-0.37,0.09)	
	Missing	942	-1.67 (0.05)	-0.02 (-0.14,0.10)	
Disc hemorrhage	No	475	-1.66 (0.03)	Reference	0.799
	Yes	7	-2.03 (0.56)	-0.37 (-1.48,0.74)	
	Missing	942	-1.67 (0.05)	-0.01 (-0.13,0.11)	
Arteriole narrowing	No	473	-1.67 (0.03)	Reference	0.339
	Yes	9	-1.43 (0.14)	0.25 (-0.05,0.54)	
	Missing	942	-1.67 (0.05)	-0.00 (-0.12,0.12)	

Venule narrowing	No	475	-1.66 (0.03)	Reference	0.875
	Yes	7	-1.80 (0.26)	-0.14 (-0.65,0.38)	
	Missing	942	-1.67 (0.05)	-0.01 (-0.13,0.11)	
Baring of the lamina cribrosa	No	128	-1.79 (0.06)	Reference	0.090
	Yes	354	-1.62 (0.04)	0.17 (0.02,0.32)	
	Missing	942	-1.67 (0.05)	0.12 (-0.04,0.28)	
Baring of the circumlinear vessels	No	340	-1.68 (0.04)	Reference	0.838
	Yes	141	-1.63 (0.07)	0.05 (-0.12,0.22)	
	Missing	943	-1.67 (0.05)	0.01 (-0.12,0.13)	
Vessels overpass	No	471	-1.68 (0.03)	Reference	0.828
	Yes	7	-1.41 (0.43)	0.27 (-0.57,1.11)	
	Missing	946	-1.67 (0.05)	0.01 (-0.11,0.12)	
Bayonetting	No	319	-1.69 (0.04)	Reference	0.711
	Moderate	134	-1.61 (0.06)	0.08 (-0.07,0.23)	
	Severe	26	-1.77 (0.20)	-0.08 (-0.49,0.33)	
	Missing	945	-1.67 (0.05)	0.02 (-0.11,0.14)	
Nasalization of the vessels	No	308	-1.75 (0.04)	Reference	0.012
	Yes	174	-1.52 (0.06)	0.24 (0.09,0.39)	
	Missing	942	-1.67 (0.05)	0.08 (-0.05,0.21)	
Cilio-retinal vessels	No	381	-1.68 (0.04)	Reference	0.854
	Yes	101	-1.63 (0.07)	0.04 (-0.11,0.20)	
	Missing	942	-1.67 (0.05)	0.00 (-0.12,0.13)	
Gray crescent	No	445	-1.65 (0.04)	Reference	0.515
	Yes	37	-1.81 (0.13)	-0.16 (-0.42,0.11)	
	Missing	942	-1.67 (0.05)	-0.02 (-0.14,0.10)	
Conus pigmentosus	No	434	-1.69 (0.03)	Reference	0.202
	Yes	48	-1.48 (0.11)	0.21 (-0.01,0.43)	
	Missing	942	-1.67 (0.05)	0.01 (-0.11,0.14)	
Notching of neural rim	No	449	-1.69 (0.03)	Reference	0.257
	Yes	30	-1.41 (0.16)	0.28 (-0.04,0.59)	
	Missing	945	-1.67 (0.05)	0.02 (-0.10,0.14)	
Pallor of the neural rim	No	475	-1.67 (0.03)	Reference	0.943
	Yes	7	-1.60 (0.21)	0.07 (-0.35,0.49)	
	Missing	942	-1.67 (0.05)	-0.00 (-0.13,0.12)	

OR=odds ratio; CI=confidence interval

Table 7: Univariable analysis of demographic risk factors of being a moderate or fast functional progressor

	levels	N	# of fast progressors (%)	OR (95% CI)	P value
Age (years)	<=60	304	26 (8.55%)	Ref	0.517
	(60,70]	415	48 (11.57%)	1.41 (0.77,2.59)	
	>70	609	62 (10.18%)	1.19 (0.66,2.13)	
	Missing	96	32 (33.33%)	-	
Age (per 10 year increase)				0.97 (0.81,1.17)	0.782
Sex	Male	648	95 (14.66%)	Ref	0.008
	Female	772	73 (9.46%)	0.59 (0.40,0.87)	
	Missing	4	0 (0.00%)	-	
BMI (kg/m ²)	< 25	262	33 (12.60%)	Ref	0.668
	25-30	466	45 (9.66%)	0.77 (0.44,1.37)	
	>=30	563	58 (10.30%)	0.83 (0.49,1.42)	
	Missing	133	32 (24.06%)	-	
BMI (per 1 kg/m ² change)				0.99 (0.95,1.03)	0.464
Diabetes	No	735	75 (10.20%)	Ref	0.674
	Yes	558	62 (11.11%)	1.09 (0.72,1.66)	
	Missing	131	31 (23.66%)	-	
Hypertension	No	228	17 (7.46%)	Ref	0.146
	Yes	1067	120 (11.25%)	1.57 (0.85,2.87)	
	Missing	129	31 (24.03%)	-	
Family glaucoma history	No	487	54 (11.09%)	Ref	0.588
	Yes	713	70 (9.82%)	0.89 (0.57,1.37)	
	Missing	224	44 (19.64%)	-	
Alcohol use	No	569	54 (9.49%)	Ref	0.278
	Yes	661	50 (7.56%)	0.78 (0.49,1.23)	
	Missing	194	64 (32.99%)	-	
Tobacco use	No	538	46 (8.55%)	Ref	0.801
	Yes	694	57 (8.21%)	0.94 (0.59,1.50)	
	Missing	192	65 (33.85%)	-	
Previous glaucoma surgery	No	895	75 (8.38%)	Ref	0.004
	Yes	383	56 (14.62%)	1.90 (1.23,2.92)	
	Missing	146	37 (25.34%)	-	
LMX1B	GC	27	8 (29.63%)	Ref	0.011

	GG	1127	123 (10.91%)	0.28 (0.10,0.75)	
	Missing	270	37 (13.70%)	-	
<i>TRIM66</i>	TC	146	28 (19.18%)	Ref	0.015
	TT	1004	102 (10.16%)	0.50 (0.28,0.88)	
	Missing	274	38 (13.87%)	-	

OR=odds ratio; CI=confidence interval; BMI=body mass index

Table 8: Univariable analysis for ocular risk factors for being a moderate or fast functional progressor

	# of eyes	# of fast functional progressors (%)	OR (95%CI)	P value
CCT (per 10 μ m/increase)	1228	139 (11.32%)	1.01 (0.96,1.07)	0.636
CDR (per 0.1 increase)	607	27 (4.45%)	0.91 (0.72,1.15)	0.428
IOP (per 1 mmHg increase)	936	68 (7.26%)	1.05 (1.03,1.08)	<.001
MD (per 1 dB increase)	1424	168 (11.80%)	1.01 (0.98,1.04)	0.469
PSD (per 1 dB increase)	1417	168 (11.86%)	1.03 (0.98,1.08)	0.195
RNFL (per 10 μ m/increase)	628	31 (4.94%)	1.00 (0.74,1.36)	0.990
VA (per 0.1 logMAR increase)	532	20 (3.76%)	1.05 (0.92,1.19)	0.462

OR=odds ratio; CI=confidence interval; CCT=central corneal thickness; CDR=cup-to-disc ratio; IOP=intraocular pressure; MD=mean deviation; PSD=pattern standard deviation; RNFL=retinal nerve fiber layer thickness; VA=visual acuity

Table 9: Univariable analysis for qualitative phenotype risk factors for being a moderate or fast functional progressor

	Level	# of eyes	# of moderate or fast progressors (%)	OR (95% CL)	P value
Disc shape	Round	140	5 (3.57%)	Reference	0.486
	Oval	156	8 (5.13%)	1.50 (0.48,4.65)	
	Missing	1128	155 (13.74%)	-	
Disc Size	Recorded	297	13 (4.38%)	-	.
	Missing	1127	155 (13.75%)	-	
Shape of cup	Conical	101	6 (5.94%)	Reference	0.717
	Cylindrical	152	6 (3.95%)	0.69 (0.22,2.16)	
	Bean Pot	34	1 (2.94%)	0.48 (0.06,4.17)	
	Missing	1137	155 (13.63%)	-	
Cup Depth	Shallow	21	2 (9.52%)	Reference	0.460
	Moderate	195	8 (4.10%)	0.39 (0.08,1.85)	
	deep	77	3 (3.90%)	0.37 (0.06,2.21)	
	Missing	1131	155 (13.70%)	-	
Rim plane position constant through 360	No	53	2 (3.77%)	Reference	0.768
	Yes	240	11 (4.58%)	1.26 (0.27,6.00)	
	Missing	1131	155 (13.70%)	-	
Beta PPA	No	80	6 (7.50%)	Reference	0.113
	Yes	216	7 (3.24%)	0.41 (0.14,1.23)	
	Missing	1128	155 (13.74%)	-	
Tilted disc	No	264	9 (3.41%)	Reference	0.031
	Yes	32	4 (12.50%)	4.01 (1.14,14.13)	
	Missing	1128	155 (13.74%)	-	
Disc hemorrhage	No	295	13 (4.41%)	-	
	Yes	2	0 (0.00%)	-	
	Missing	1127	155 (13.75%)	-	
Arteriole narrowing	No	295	12 (4.07%)	Reference	0.030
	Yes	2	1 (50.00%)	23.12 (1.36,392.27)	
	Missing	1127	155 (13.75%)	-	

Venule narrowing	No	293	13 (4.44%)	-	
	Yes	4	0 (0.00%)	-	
	Missing	1127	155 (13.75%)	-	
Baring of the lamina cribrosa	No	85	6 (7.06%)	Reference	0.171
	Yes	212	7 (3.30%)	0.46 (0.15,1.40)	
	Missing	1127	155 (13.75%)	-	
Baring of the circumlinear vessels	No	208	11 (5.29%)	Reference	0.243
	Yes	88	2 (2.27%)	0.40 (0.09,1.85)	
	Missing	1128	155 (13.74%)	-	
Vessels overpass	No	292	13 (4.45%)	Reference	.
	Missing	1132	155 (13.69%)	-	
Bayonetting	No	205	10 (4.88%)	Reference	0.652
	Yes	75	2 (2.67%)	0.55 (0.12,2.51)	
	2	13	1 (7.69%)	1.58 (0.18,14.06)	
	Missing	1131	155 (13.70%)	-	
Nasalization of the vessels	No	195	11 (5.64%)	Reference	0.165
	Yes	101	2 (1.98%)	0.35 (0.08,1.54)	
	Missing	1128	155 (13.74%)	-	
Cilio-retinal vessels	No	243	12 (4.94%)	Reference	0.328
	Yes	54	1 (1.85%)	0.35 (0.04,2.90)	
	Missing	1127	155 (13.75%)	-	
Gray crescent	No	272	13 (4.78%)	-	
	Yes	25	0 (0.00%)	-	
	Missing	1127	155 (13.75%)	-	
Conus pigmentosus	No	269	13 (4.83%)	-	
	Yes	28	0 (0.00%)	-	
	Missing	1127	155 (13.75%)	-	
Notching of neural rim	No	271	13 (4.80%)	-	
	Yes	22	0 (0.00%)	-	
	Missing	1131	155 (13.70%)	-	
Pallor of the neural rim	No	291	13 (4.47%)	-	
	Yes	6	0 (0.00%)	-	
	Missing	1127	155 (13.75%)	-	

OR=odds ratio; CI=confidence interval

Table 10: Univariable analysis for demographic risk factors of increasing MD rate of change

	Levels	N	Rate of RNFL change Mean (SE)	Difference (95% CI)	P-value
Age (years)	<=60	304	-0.38 (0.01)	Reference	0.18
	(60,70]	415	-0.41 (0.01)	-0.03 (-0.07,0.00)	
	>70	609	-0.40 (0.01)	-0.02 (-0.05,0.01)	
	Missing	96	-	-	
Age at enrollment (per 10-year increase)				-0.00 (-0.01, 0.01)	0.92
sex	Male	648	-0.41 (0.01)	Reference	0.13
	Female	772	-0.39 (0.01)	0.02 (-0.01,0.04)	
	Missing	4	-	-	
BMI (kg/m ²)	< 25	262	-0.42 (0.01)	Reference	0.13
	25-30	466	-0.40 (0.01)	0.02 (-0.01,0.05)	
	>=30	563	-0.39 (0.01)	0.03 (0.00,0.07)	
	Missing	133	-	-	
BMI (per kg/m ² increase)				0.0027 (0.0006, 0.0048)	0.01
Diabetes	No	735	-0.40 (0.01)	Reference	0.81
	Yes	558	-0.40 (0.01)	0.00 (-0.02,0.02)	
	Missing	131	-	-	
Hypertension	No	228	-0.39 (0.01)	Reference	0.71
	Yes	1067	-0.40 (0.01)	-0.00 (-0.03,0.02)	
	Missing	129	-	-	
Family glaucoma history	No	487	-0.40 (0.01)	Reference	0.98
	Yes	713	-0.40 (0.01)	-0.00 (-0.02,0.02)	
	Missing	224	-	-	
Alcohol use	No	569	-0.39 (0.01)	Reference	0.77
	Yes	661	-0.39 (0.01)	0.00 (-0.02,0.02)	
	Missing	194	-	-	
Tobacco use	No	538	-0.39 (0.01)	Reference	0.72
	Yes	694	-0.39 (0.01)	-0.00 (-0.02,0.02)	
	Missing	192	-	-	
Previous glaucoma surgery	No	895	-0.39 (0.01)	Reference	0.22
	Yes	383	-0.41 (0.01)	-0.02 (-0.05,0.01)	
	Missing	146	-	-	

<i>LMX1B</i>	GC	27	-0.47 (0.03)	Reference	.
	GG	1127	-0.40 (0.01)	0.06 (-0.00,0.13)	0.07
	Missing	270	-	-	.
<i>TRIM66</i>	TC	146	-0.43 (0.02)	Reference	.
	TT	1004	-0.40 (0.01)	0.03 (-0.00,0.07)	0.06
	Missing	274	-	-	.

MD=mean deviation; OR=odds ratio; CI=confidence interval; BMI=body mass index

Table 11: Univariable analysis for ocular risk factors of increasing MD progression rate

	# of eyes	Regression Coefficient for rate of MD change (95% CI)	P-value*
CCT (per 10 μm /increase)	1228	-0.002 (-0.005,0.001)	0.160
CDR (per 0.1 increase)	607	0.008 (0.004,0.012)	<.001
IOP (per 1 mmHg increase)	936	-0.001 (-0.003,0.001)	0.418
MD (per 1 dB increase)	1424	-0.006 (-0.008,-0.003)	<.001
PSD (per 1 dB increase)	1417	0.000 (-0.002,0.003)	0.772
RNFL (per 10 μm /increase)	628	-0.015 (-0.029,-0.002)	0.025
VA (per 0.1 logMAR increase)	532	0.001 (-0.001,0.003)	0.451

OR=odds ratio; CI=confidence interval; CCT=central corneal thickness; CDR=cup-to-disc ratio; IOP=intraocular pressure; MD=mean deviation; PSD=pattern standard deviation; RNFL=retinal nerve fiber layer thickness; VA=visual acuity

Table 12: Univariable analysis for qualitative phenotype risk factors of increasing MD rate of change

		N	Rate of MD progression (dB/y) Mean (SE)	Difference (95% CI)	P value
Disc shape	Round	140	-0.40 (0.01)	Reference	0.985
	Oval	156	-0.40 (0.01)	0.00 (-0.01,0.02)	
	Missing	1128	-0.40 (0.01)	0.00 (-0.02,0.02)	
Disc Size	Abnormal	3	-0.41 (0.01)	Reference	0.603
	Normal	294	-0.40 (0.00)	0.01 (-0.01,0.03)	
	Missing	1127	-0.40 (0.01)	0.01 (-0.01,0.04)	
Shape of cup	Conical	101	-0.42 (0.01)	Reference	0.078
	Cylindrical	152	-0.40 (0.01)	0.02 (0.00,0.03)	
	Bean Pot	34	-0.39 (0.01)	0.03 (0.00,0.06)	
	Missing	1137	-0.40 (0.01)	0.01 (-0.00,0.03)	
Cup Depth	Shallow	21	-0.42 (0.01)	Reference	0.144
	Moderate	195	-0.41 (0.00)	0.01 (-0.02,0.04)	
	deep	77	-0.39 (0.01)	0.03 (-0.00,0.06)	
	Missing	1131	-0.40 (0.01)	0.01 (-0.02,0.04)	
Rim plane position constant through 360	No	53	-0.41 (0.01)	Reference	0.294
	Yes	240	-0.40 (0.00)	0.01 (-0.00,0.02)	
	Missing	1131	-0.40 (0.01)	0.01 (-0.01,0.03)	
Beta PPA	No	80	-0.40 (0.01)	Reference	0.996
	Yes	216	-0.40 (0.00)	0.00 (-0.02,0.02)	
	Missing	1128	-0.40 (0.01)	0.00 (-0.02,0.02)	
Tilted disc	No	264	-0.40 (0.00)	Reference	0.362
	Yes	32	-0.42 (0.01)	-0.02 (-0.04,0.01)	
	Missing	1128	-0.40 (0.01)	-0.00 (-0.02,0.01)	
Disc hemorrhage	No	295	-0.40 (0.00)	Reference	0.891
	Yes	2	-0.39 (0.02)	0.01 (-0.02,0.04)	
	Missing	1127	-0.40 (0.01)	-0.00 (-0.02,0.02)	

Arteriole narrowing	No	295	-0.40 (0.00)	Reference	0.431
	Yes	2	-0.52 (0.04)	-0.12 (-0.20,-0.05)	
	Missing	1127	-0.40 (0.01)	-0.00 (-0.02,0.02)	
Venule narrowing	No	293	-0.40 (0.00)	Reference	0.457
	Yes	4	-0.34 (0.04)	0.06 (-0.01,0.14)	
	Missing	1127	-0.40 (0.01)	0.00 (-0.02,0.02)	
Baring of the lamina cribrosa	No	85	-0.41 (0.01)	Reference	0.169
	Yes	212	-0.40 (0.00)	0.02 (-0.00,0.03)	
	Missing	1127	-0.40 (0.01)	0.01 (-0.01,0.03)	
Baring of the circumlinear vessels	No	208	-0.40 (0.00)	Reference	0.822
	Yes	88	-0.40 (0.01)	0.00 (-0.01,0.02)	
	Missing	1128	-0.40 (0.01)	0.00 (-0.02,0.02)	
Vessels overpass	No	292	-0.40 (0.00)	Reference	0.957
	Yes	0	-	-	
	Missing	1132	-0.40 (0.01)	0.00 (-0.02,0.02)	
Bayonetting	No	205	-0.40 (0.00)	Reference	0.436
	Moderate	75	-0.39 (0.01)	0.01 (-0.00,0.03)	
	Severe	13	-0.42 (0.01)	-0.02 (-0.05,0.01)	
	Missing	1131	-0.40 (0.01)	0.00 (-0.01,0.02)	
Nasalization of the vessels	No	195	-0.41 (0.01)	Reference	0.539
	Yes	101	-0.39 (0.01)	0.01 (-0.01,0.03)	
	Missing	1128	-0.40 (0.01)	0.00 (-0.01,0.02)	
Cilio-retinal vessels	No	243	-0.40 (0.00)	Reference	0.158
	Yes	54	-0.39 (0.01)	0.02 (0.00,0.03)	
	Missing	1127	-0.40 (0.01)	0.00 (-0.01,0.02)	
Gray crescent	No	272	-0.40 (0.00)	Reference	0.762
	Yes	25	-0.39 (0.01)	0.01 (-0.01,0.03)	
	Missing	1127	-0.40 (0.01)	0.00 (-0.02,0.02)	
Conus pigmentosus	No	269	-0.40 (0.00)	Reference	0.950
	Yes	28	-0.40 (0.01)	0.00 (-0.01,0.02)	
	Missing	1127	-0.40 (0.01)	0.00 (-0.02,0.02)	
Notching of neural rim	No	271	-0.40 (0.00)	Reference	0.624
	Yes	22	-0.39 (0.01)	0.02 (-0.02,0.05)	
	Missing	1131	-0.40 (0.01)	0.00 (-0.01,0.02)	

Pallor of the neural rim	No	291	-0.40 (0.00)	Reference	0.607
	Yes	6	-0.38 (0.02)	0.02 (-0.01,0.06)	
	Missing	1127	-0.40 (0.01)	0.00 (-0.02,0.02)	

MD=mean deviation; OR=odds ratio; CI=confidence interval