

short-wavelength automated perimetry

:
: Humphrey 14 14
macular threshold test 가 18dB
가 0 dB
가 7 , 가 7 , 가
: , 5° 0 dB (p < 0.05).
:
5.
< 42(10):1427 - 1432, 2001 >

가
(central island) 가
가 Quigley³ 가
가 가
split fixation가 (Short
wavelength automated perimetry: SWAP)
가^{4,5} Capoferri⁶
5° SWAP 가
가 SWAP
Weiner² 가 SWAP

< : 2001 6 4 , : 2001 9 19 > 가
:
1

SWAP

field threshold test

Hodapp ⁷

SWAP

가

. Hodapp ⁷

, -12 dB mean deviation < -6 dB, pattern deviation plot 5%

50%, 1%

25%, 가 0 dB

5°, 5°

가 5 dB 1 hemifield

, mean deviation < -12dB

, pattern deviation plot 5%

50%, 1%

25%, 5° 가

15 dB hemifield

14

14 8, 6

1 mean deviation -21.67±6.82

5 dB, corrected pattern standard deviation

7.36±3.24 dB 1

18 dB 20 dB

26.0±4.35 dB 가 18

dB 가

가

가 0.84±0.13 가

0.83±0.12 30 69

가 18 dB

0 dB

, 49.2 Snellen

20/50, 20/50 2

, 20/30 1, 11 20/25

3.29±4.01 dB

1

21 mmHg

VCTS 6500(Visitech consultants,

Inc. USA)

Humphery Field Analyzer model

640 STATPAC

central 30-2 full field threshold test macular

threshold test

macular threshold test

(white-on-white)

(blue-on-yellow) 가

mean deviation, pattern standard

deviation, corrected pattern standard deviation,

Mann-Whitney test

, central 30-2 threshold test

5° 0 dB

Macular threshold test 30-2 full threshold

test 1

Chi-square test

가

31.5 apostilb

635 apostilb

Humphery Field Analyzer 30-2 full

SPSS 8.0

Table 1. Comparison of groups. Only foveal white threshold, showed significantly different between two groups.(group 1:foveal threshold blue on yellow<0dB, group 2:foveal threshold blue on yellow>0dB)

Parameters	group1	group2	p-value
FT w/w*	22.86 ± 3.53	29.14 ± 2.34	0.007
age	48.6 ± 16.3	49.9 ± 15.02	0.949
visual acuity	0.8 ± 0.24	0.89 ± 0.23	0.357
refractive error	3.11 ± 4.48	3.18 ± 3.54	0.698
MD†	24.25 ± 6.45	19.09 ± 6.62	0.110
CPSD‡	7.30 ± 3.82	7.41 ± 2.85	0.848
CST 1.5 cpd§	33.33 ± 19.41	40.71 ± 21.10	0.446
CST 3 cpd	51.00 ± 27.81	70.43 ± 25.55	0.208
CST 6 cpd	52.83 ± 40.96	63.71 ± 32.66	0.418
CST 12 cpd	22.83 ± 18.00	23.14 ± 17.62	1.000
CST 18 cpd	6.00 ± 2.45	7.00 ± 3.00	0.539
vertical C/D	0.89 ± 0.11	0.86 ± 0.14	0.072
horizontal C/D	0.80 ± 0.09	0.80 ± 0.15	0.477

* Foveal white on white threshold

† Mean deviation

‡ Corrected pattern standard deviation

§ Contrast sensitivity test(cpd : cycle per degree)

Table 2. Factors affecting blue foveal threshold. White foveal threshold showed correlation with blue foveal threshold.

Parameters	coefficient	p-value
FT w/w*	0.930	0.005
age	0.158	0.597
visual acuity	-0.356	0.210
refractive error	-0.205	0.487
vertical CD	-0.156	0.449

* Foveal white on white threshold

(p>0.05). (Table 1)

1.5 cpd (cycle per degree)	33.33 ± 19.41
3 cpd	40.71 ± 21.10
6 cpd	70.43 ± 25.55
12 cpd	63.71 ± 32.66
18 cpd	23.14 ± 17.62
	7.00 ± 3.00

(p>0.05).(Table 1)

Global index mean deviation
corrected pattern standard deviation
mean deviation

24.25 ± 6.45 dB, 19.09 ± 6.62 dB, corrected pattern standard deviation

7.30 ± 3.82 dB, 7.41 ± 2.85 dB
(p>0.05).(Table 1)

22.86 ± 48.6 ± 49.9 ± 15.2, 3.53 dB, 29.14 ± 2.34 dB

0.8 ± 0.89 ± 0.23, (p=0.007).(Table 1)

3.11 ± 4.48, 3.18 ± 3.54, 0.89 ± 0.11,

17.6 ± 3.10 mmHg, 17.7 ± 3.04 mmHg, 0.80 ± 0.14, 0.86 ± 0.09, 0.80 ± 0.15

($p > 0.05$). (Table 1)

가 18 dB , SWAP
가

4 , 3 .
7 4 ,
3 .
가 (p>0.05), central 30-2 threshold
test 5° 0 dB 20 dB , 1 18 dB
가

7 6 , 7 1
($p = 0.029$). SWAP 가 0 dB
가

ANOVA
test 가 SWAP 0 dB

($r = 0.93, p = 0.005$) (Table 2).
5 dB 가 , 가 가
5° 0 dB 가
가 , SWAP
가 , 3가 SWAP

Quigley³ 가 가
Glovinsky⁸ Capoferri⁶

가 가
가 가

magnocellular pathway가
Sample⁹ 가 0.8
Johnson¹⁰ , 가

parvocellular pathway
SWAP magnocellular pathway on-white 가 white-
motion automated perimetry , 5° 0 dB
가 가 .

가 . SWAP 가 가
가 가 가
가 가 가

Hodapp⁷

- : —
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= ABSTRACT =

Factors affecting foveal threshold measured by short-wavelength automated perimetry in primary open angle glaucoma

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Purpose : To evaluate the factors affecting foveal threshold measured by blue on yellow perimetry in moderate to severe open angle glaucoma.

Methods : Fourteen eyes of 14 patients who were diagnosed as moderate to severe open angle glaucoma underwent macular threshold test of the Humphrey Field Analyzer using white and blue targets. The foveal threshold using white targets (white threshold) was more than or equal to 18 dB in all cases. The cases of foveal threshold using blue targets (blue threshold) less than or equal to 0 dB were defined as foveal sensitivity loss group (7 eyes) and those more than 0 dB as no foveal sensitivity loss group (7 eyes). Those of age, contrast sensitivity, visual acuity, refraction, mean deviation, pattern standard deviation, corrected pattern standard deviation, vertical and horizontal C/D ratio, foveal white threshold, intraocular pressure, any point within central 5 ° with sensitivity less than or equal to 0 dB in visual field test were statistically analyzed between the two groups.

Results : Foveal white threshold and any point within central 5 ° with sensitivity less than or equal to 0 dB in visual field test showed significant difference between the two groups.

Conclusion : Foveal dysfunction represented as decrease in blue threshold is possibly related to the paracentral scotoma which means any point within central 5 ° with sensitivity less than or equal to 0 dB in moderate to severe open angle glaucoma. However, significant deficits in either visual acuity or white threshold were not presented.

J Korean Ophthalmol Soc 42(10):1427-1432, 2001

Key words : Blue on yellow perimetry, Foveal threshold, Open angle glaucoma

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