



Optic nerve head damage progression in patients with glaucoma

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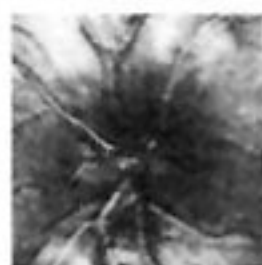
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Abstract

Purpose: To steady the optic nerve head damage progression in glaucoma. *Material and methods:* 178 eyes with open angle glaucoma were studied in order to classify them into different stages in correlation with their visual fields. 172 normal eyes were studied and compared as a control group. Examinations were performed with the Heidelberg Retina Tomograph (longwave: 680 nm), using the new standard reference plane. Each examination is a mean of 3 acquisitions with 5 STD lower than $N = 20$. Each optic nerve head was studied in 360 degrees (segments) and in quadrants and octants separately (predefined segments). Visual fields were performed with Octopus 23 or 101, programs G2 and 62x, with 3 phases completed. Diurnal pressure curve with applanation tonometry and gonioscopy (for classification) were also performed. *Results:* Glaucomatous optic neuropathy was classified into 6 stages: NORMAL, BORDERLINE, PHASE 1, PHASE 2, PHASE 3 and PHASE 4. The group with normal optic nerve head was the only one included in the HYPERTENSIVE PERIOD of the disease. Borderline, Phase 1 and Phase 2 were included in the PREPERIMETRIC PERIOD, and Phase 3 and Phase 4 were included in the PERIMETRIC PERIOD of this disease. *Conclusion:* Confocal tomography of the optic nerve head is helpful in showing glaucomatous damage, specially in the preperimetric period, when visual field remains normal. It also helps to differentiate hypertensive eyes from early preperimetrics eyes. *Discussion:* Confocal tomography of the optic nerve head seems to detect glaucomatous optic nerve head damage much earlier than visual field does.

NORMAL O.N.H

HYPERTENSIVE PERIOD

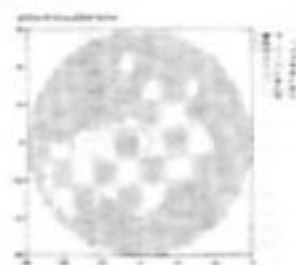


STEREOMETRICS

RIM VOLUME
CUP VOLUME
RIM AREA
CUP AREA
CUP SHAPE MEAS.
M.RNFL THICKNES
(Abnormal temporal q.)

NORMAL

> 0.32 mm³
< 0.12 mm³
> 1.37 mm²
< 0.60 mm²
< 0.15 ---
> 0.87 mm



BORDER LINE O.N.H. PREPERIMETRIC PERIOD

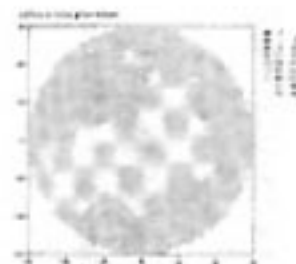


STEREOMETRICS

RIM VOLUME
CUP VOLUME
RIM AREA
CUP AREA
CUP SHAPE MEAS.
M.RNFL THICKNESS

BORDER L

> 0.32 mm³
< 0.12 mm³
> 1.37 mm²
< 0.60 mm²
< 0.15 ---
> 0.87 mm



PHASE 1

PREPERIMETRIC PERIOD

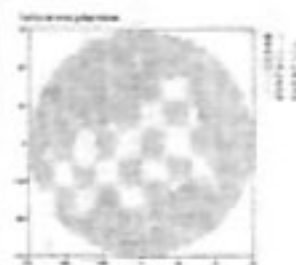


STEREOMETRICS

RIM VOLUME
CUP VOLUME
RIM AREA
CUP AREA
CUP SHAPE MEAS.
M.RNFL THICKNESS

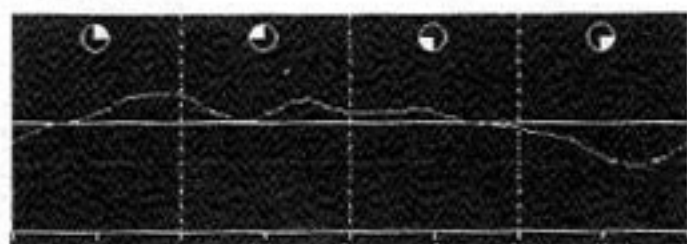
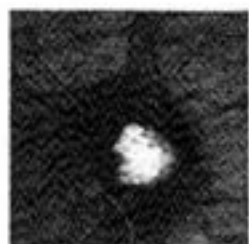
PHASE 1

0.32-0.30 mm³
0.12-0.24 mm³
1.37-1.20 mm²
0.60-1.00 mm²
-0.15 - -0.12 --
0.87-0.60 mm



PHASE 2

PERIMETRIC PERIOD STARTS

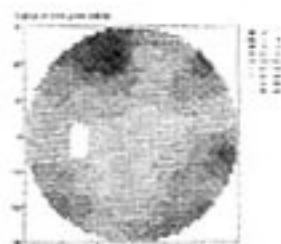


STEREOMETRICS

RIM VOLUME
CUP VOLUME
RIM AREA
CUP AREA
CUP SHAPE MEAS.
M.RNFL THICKNESS

PHASE II

0.30-0.20 mm³
0.24-0.48 mm³
1.20-0.80 mm²
1.00-1.50 mm²
-0.12- -0.07 --
0.60-0.40 mm



PHASE 3

PERIMETRIC PERIOD



STEREOMETRICS

RIM VOLUME
CUP VOLUME
RIM AREA
CUP AREA
CUP SHAPE MEAS.
M.RNFL THICKNESS

PHASE III

0.20-0.10 mm³
0.48-0.96 mm³
0.80-0.40 mm²
1.50-1.80 mm²
-0.07- -0.02 --
0.40-0.20 mm



PHASE 4

PERIMETRIC PERIOD

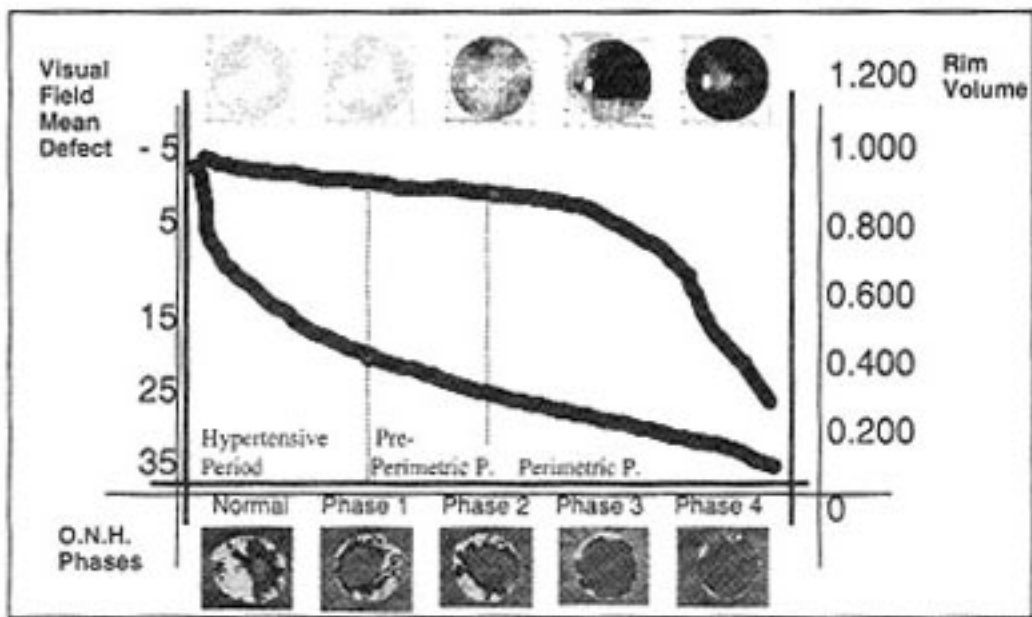
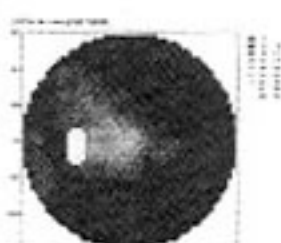


STEREOMETRICS

RIM VOLUME
CUP VOLUME
RIM AREA
CUP AREA
CUP SHAPE MEAS.
M.RNFL THICKNESS

PHASE IV

0.10-0.00 mm³
0.96 > mm³
0.40-0.00 mm²
1.80 > mm²
0.00 > --
0.20-0.00 mm



I.O.P.	OPTIC NERVE HEAD						
	N	BL	PI	PII	PIII	PIV	
50	VISUAL FIELD						
40							
30							
20	N			BL	S I	S II	S III
10	N			BL	S I	S II	S III
HYPERTENSIVE		PRE-PERIMETRIC		PERIMETRIC			