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# Cluster visual field progression and its relationship with optic disc changes.

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Footnotes

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## Abstract

## Purpose

Glaucoma diagnosis and follow up of progression is often based on structural and functional assessments. This study aimed to assess clustered progression and evaluate its correlation with the corresponding disc changes (RA sectors) obtained from HRT examinations.

## Methods

51 eyes from OHT and glaucoma patients with a minimum of 5 reliable visual field tests (HFA II i 24-2) and HRT with a follow-up >4 years were analyzed retrospectively. Linear regression of clusters defined by the Glaucoma Hemifield Test (GHT) was performed based on the mean threshold in each cluster. Global and sectoral rates of change in RAs were assessed and correlated with functional clustered measures. Clustered rates of VF and RA change were flagged as statistically significant progression if the gradients over time were negative with  $p < 0.05$ .

## Results

GHT cluster analysis and RA rates classified 78,5% (clusters  $\geq 1$ ) and 86.3% eyes as progressing, respectively, with poor agreement ( $k=0.06$ ). The median number of progressing cluster was 1.3 and visual field progression was greater and more frequently seen in clusters 4 (23.1%) and cluster 1 (21.5%). 88.6% of eyes with progression in both clusters and rim areas showed correlation between rim area sectors and corresponding visual field clusters.

## Conclusions

Visual field clusters successfully detected spatial locations of sensitivity loss showing concordance with structural rim area measures. This suggests GHT clusters to be a sensitive method for the early identification of glaucomatous visual field loss.

	Stable		Progressive	
	<i>Number</i>	<i>(%)</i>	<i>Number</i>	<i>(%)</i>
GHT clusters	11	(21.5%)	40	(78.5%)
Rim area (HRT)	7	(13.7%)	44	(86.3%)

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Percentage of subjects with progression in GHT cluster and HRT.

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