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ABSTRACT

TITLE: Static peripheral visual field testing in glaucoma patients: Does it add useful information to that gained from static central threshold perimetry?

ABSTRACT BODY:

Purpose: Glaucomatous visual field (VF) defects are most frequently tested for in the central 24-30 degrees of vision. Defects are also known to occur outside this central region, though the relationship of more peripheral defects to central defects has not been well characterized. Here, we determine the relationship between static VF testing results obtained from peripheral 30-60 degree testing and central 24-2 testing.

Methods: Patients with glaucoma or suspect glaucoma completed static VF testing over their central 24-30 degrees (using the 24-2 testing algorithm) and over their more peripheral VF (using the 30-60 degree suprathreshold algorithm). For central 24-2 testing, points were classified as abnormal if the probability of abnormality on the total deviation plot was ≤ 0.05 ; peripheral 30-60 points were defined as abnormal when the stimulus was not seen at that location.

Results: Two hundred one eyes of 201 patients were analyzed. Among all patients, moderate correlations were observed between the number of abnormal 24-2 and 30-60 degree VF points noted in the superior hemisphere ($r=0.61$) and inferior hemisphere ($r=0.58$). However, weaker correlations were observed when correlations were assessed only for eyes with a VF mean deviation (MD) < -5 dB ($n=61$; $r=0.29$ when correlating the number of abnormal superior 30-60 and 24-2 points and $r=0.40$ when correlating the number of abnormal inferior 30-60 and 24-2 points). For both the full patient group and the patient subgroup with a VF MD < -5 , lower correlations were observed when the number of abnormal 30-60 degree points in the superior hemisphere was compared to the number of abnormal 24-2 points in the inferior hemisphere (and vice versa).

Conclusions: Results from central 24-2 VFs are moderately correlated with results from tests of the more peripheral field, with stronger correlations noted within the same hemisphere (superior vs. superior or inferior vs. inferior) as opposed to across hemispheres (superior vs. inferior). These results suggest that central VF testing, to some extent, captures what is happening in the more peripheral VF field. Further research is needed to define the frequency with which central VF testing misses or poorly captures peripheral VF defects, though such work is hindered by the fact that definitions of “true” VF loss outside the central 30 degrees have not been developed.