Differentiating Intermediate AMD from Recent Onset CNV with the PHP

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Abstract

Background:

Objective: To investigate the ability of Preferential Hyperacuity Perimetry (PHP) to discriminate between patients with choroidal neovascularization (CNV) and intermediate AMD based on AREDS criteria.

Methods: Patients suspected of having intermediate AMD or recently developed CNV underwent corrected visual acuity and eye examination. The PHP test was performed prior to pupillary dilation by an examiner who was masked to the patient's diagnosis. Each patient suspected of having intermediate AMD without CNV, had stereoscopic color fundus photographs taken and reviewed. Each patient suspected of having CNV had a fluorescein angiogram obtained and reviewed. In the PHP test, based on the phenomenon of hyperacuity, distortions or scotomata were recorded within a perifoveal radius of 7^0 and automatically analyzed. A map of the macular visual field was produced, along with an automatic interpretation of results utilizing pattern recognition algorithms designed to indicate whether CNV was suspected to be present. A retinal specialist who was masked to the PHP test results graded the color photographs and angiograms.

Results: Eighty-two patients, ages ranging from 54 to 88 years (median 75 years), entered the study. Ten patients were excluded (3 with early AMD, 2 with geographic atrophy, 2 with no AMD, 1 with pattern dystrophy, and 2 with poor photographic quality). Of 27 eyes with documented CNV, 23 (85%) were identified as having CNV with the PHP test. Of 45 eyes with documented intermediate AMD with no CNV, 6 (14%) were identified as having CNV with the PHP test. These results yielded a sensitivity of 85% ± 13% (95% confidence interval [72%, 98%]) and a specificity of 87% ± 10% (95% [77%, 97%]).

Conclusions: The PHP test appears to differentiate between CNV and intermediate AMD, and thus may be beneficial for monitoring intermediate AMD patients for development of CNV.

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