NEW GLAUCOMA FINDINGS: ORIGINAL STUDIES

Evaluation of Static and Dynamic Pupillary Functions in Early-Stage Primary Open Angle Glaucoma

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Abstract

Précis:

The dynamic parameters of the pupil, evaluated with an automated pupillometry device, differ in newly diagnosed early-stage primary open angle glaucoma (POAG) patients compared with healthy individuals, and this may guide us in early diagnosis and follow-up of glaucoma.

Introduction and Aim:

To quantitatively determine static and dynamic pupillary functions in treatment-naive, newly diagnosed early-stage POAG patients and compare them with healthy controls.

Methods:

Forty eyes of forty subjects with early POAG were compared with 71 eye of 71 age- matched and sex-matched healthy controls in terms of static and dynamic pupillary functions in this prospective and cross-sectional study. Static and dynamic pupillary functions were obtained with an automated pupillometry device. Static pupillometry parameters are pupil diameter (mm) in high photopic (100 cd/m^2), low photopic (10 cd/m^2), mesopic (1 cd/m^2), and scotopic (0.1 cd/m^2) light conditions. Dynamic pupillometry parameters are resting diameter (mm), amplitude (mm), latency (ms), duration (ms), and velocity (mm/s) of pupil contraction and dilation. Measured data were evaluated and compared with *t* test for independent groups.

Pupillometry measurements were obtained through the same automated pupillometry system (MonPack One, Vision Monitor System; **Metrovision**, Pérenchies, France).

Results:

Duration of pupil contraction was lower, (P=0.04) latency of pupil dilation time was longer, (P=0.03) duration of pupil dilation was shorter (P=0.04) and velocity of pupil dilation was lower (P=0.02) in the POAG group. There was no significant difference between the 2 groups in terms of static pupillometry characteristics and the resting pupil diameter (P>0.05 for all values).

Conclusion:

These results suggest that dynamic pupillary light responses may be affected in early-stage POAG compared with the normal population. Longitudinal studies with larger series are needed to better understand the quantitative changes in dynamic pupillometry functions in early-stage POAG.