P4.27

OCT-GPA versus visual field GPA – A prospective comparison of structural and functional progression analysis in glaucoma

Dorin Chiselita¹, Ciprian Danielescu¹
¹University of Medicine and Pharmacy, Iasi - Romania

Purpose: To analyze the progression of visual field defects (VF) and/or retinal nerve fiber layer (RNFL) thinning in glaucoma suspects and early glaucoma patients, using commercially available software.

Methods: Prospective study that included 90 eyes of 45 patients (57 glaucoma suspect eyes and 33 glaucomatous eyes). All eyes were subject to at least 4 reliable visual field examinations (Humphrey Field Analyzer II) and 4 RNFL measurements (Stratus OCT). The progression was assessed using the Glaucoma Progression Analysis (for visual fields) and Guided Progression Analysis (for RNFL measurements).

Results: The mean follow-up period was 39.7 months. A total of 461 OCT scans and 484 visual fields were analyzed. The mean number of RNFL measurements was 5.12 (4 to 8 measurements) and the mean number of visual field tests was 5.38 (4 to 10 tests). The mean RNFL rate of change was -0.66 µm / year (-0.08 µm / year in glaucoma suspects and -1.27 µm / year in glaucomatous eyes – p = 0.06). The MD slope was calculated in 49 eyes with at least 5 reliable visual fields. The mean MD slope was +0.13 ± 0.4 dB/year (probably due to the learning effect). There was no difference between MD slopes of glaucoma suspects and glaucomatous eyes. Only one eye was labeled as possibly progressing by the GPA software of the Stratus OCT (in other two cases, a suspected progression after 4 exams was not confirmed ulteriorly). The visual field event analysis provided by the GPA software of HFA II has labeled 4 eyes (4.4%) as progressing. There was no visual field progression noticed by the trend analysis of MD slope. There was no agreement between the structural and functional progression in the study group.

Conclusions: In our cohort of glaucoma suspects and patients with early glaucoma, OCT GPA (a trend analysis) was not a very effective tool for detecting progression. We are expecting further software development, taking into account local thinning of RNFL as a more sensitive mark of glaucoma progression.