Pattern Electroretinogram and Visual Field in Patients with Primary Open-Angle Glaucoma

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Purpose: Glaucoma is a neurodegenerative disorder characterized by the loss of retinal ganglion cells and optic nerve fibers which result in loss of visual field. This study aimed to assess the amplitude and latency of pattern electroretinogram in patients with primary open angle glaucoma and to evaluate their correlation with visual field parameters.

Methods: The current study included 50 patients with primary open-angle glaucoma and 20 healthy control subjects attending to outpatient clinic of Mansoura ophthalmic center. The 50 glaucoma patients were divided into 3 groups (mild, moderate and sever). Ophthalmic examination included best corrected visual acuity , Gonioscopy, slit lamp biomicroscopy, intraocular pressure measurement using Goldmann applanation tonometry, visual field assessment by perimetry, and pattern electroretinogram was evaluated using RETI Port 21 (Electrophysiological Diagnostic System, Roland Consult; Brandenburg, Germany). Bivariate Correlations were assessed using Pearson's or Spearman's correlation coefficient depending on the nature of data.

Results: The mean age of the patients with POAG was 55.90±8.839 years, while in the control group it was 52.75±7.893 years. There were statistically significant differences between the two groups as regards the mean values of amplitude P50, latency P50, amplitude N95, latency N95, and latency N35.There were statistically significant positive correlations between cup/disc ratio and each of BCVA, UCVA, IOP, latency P50, latency N95, and latency N35 in glaucoma group. Statistically significant negative correlations were found between Cup/Disc ratio and each of amplitude P50, and amplitudeN95 in glaucoma group.

Conclusion: Pattern electroretinogram is a precise and objective detector of the electrical activity of the central retina's RGCs in patients with primary open-angle glaucoma.