

3.05 Newly defined N95 amplitude in the PERG

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Purpose: To investigate the utility of selected pattern electroretinogram (PERG) parameters—including conventional N95 amplitude and N95/P50 ratio, and a newly defined N95 amplitude—in the analysis of visual function(s) and for predicting changes in retinal ganglion cell structure in optic neuropathies.

Methods: This retrospective, observational case series was performed at a single center. Forty-four eyes from 36 patients diagnosed with optic neuropathy were included. A new N95 amplitude was defined as the amplitude measured from baseline to the trough of N95. PERG and pattern visual evoked potential (PVEP) measures were acquired within 1 week after onset of optic neuropathies. To compare functional and anatomical changes, mean temporal peripapillary retinal nerve fiber layer (pRNFL) and average and minimum ganglion cell-inner plexiform layer (GC-IPL) thicknesses were measured using optical coherence tomography (OCT).

Results: Thirty-six patients (20 male, 16 female; mean age 37.5 ± 17.6 years) were evaluated. The new N95 amplitude was significantly smaller than the conventional N95 amplitude (1.0 ± 0.56 and 2.45 ± 1.02 μV , respectively; $p < 0.0001$). Both the N95 and new N95 amplitudes were significantly correlated with visual acuity ($r = -0.38$, $p = 0.010$ and $r = -0.32$, $p = 0.029$, respectively). Although P100 latency was not correlated with all PERG parameters, the N95 and new N95 amplitudes demonstrated a positive correlation with P100 amplitude in PVEP ($r = 0.32$, $p = 0.032$ and $r = 0.41$, $p = 0.005$, respectively). PERG parameters, including the N95 and new N95 amplitudes and N95/P50 ratio, were not correlated with pRNFL thickness in OCT. Only the new N95 amplitude demonstrated a significant correlation with GC-IPL. **Conclusions:** The new N95 amplitude, measured from baseline to the trough of N95, was valuable in the analysis of visual function(s) and for predicting changes in retinal ganglion cell structures in optic neuropathies.