Abstracts

Articles appearing in the May 2018 issue

Multicenter reliability of semiautomatic retinal layer segmentation using OCT

Objective To evaluate the interrater reliability of semiautomated segmentation of spectral domain optical coherence tomography (OCT) macular volume scans.

Methods Macular OCT volume scans of left eyes from 17 participants (8 patients with MS and 9 healthy controls) were automatically segmented by Heidelberg Eye Explorer (v 1.9.3.0) beta software (Spectralis Viewing Module v 6.0.0.7), followed by manual correction by 5 experienced operators from 5 different academic centers. The mean thicknesses within a 6-mm area around the fovea were computed for the retinal nerve fiber layer, ganglion cell layer (GCL), inner plexiform layer (IPL), inner nuclear layer, outer plexiform layer (OPL), and outer nuclear layer (ONL). Intraclass correlation coefficients (ICCs) were calculated for mean layer thickness values. Spatial distribution of ICC values for the segmented volume scans was investigated using heat maps.

Results Agreement between raters was good (ICC > 0.84) for all retinal layers; particularly inner retinal layers showed excellent agreement across raters (ICC > 0.96). Spatial distribution of ICC showed highest values in the perimacular area, whereas the ICCs were poorer for the foveola and the more peripheral macular area. The automated segmentation of the OPL and ONL required the most correction and showed the least agreement, whereas differences were less prominent for the remaining layers.

Conclusions Automated segmentation with manual correction of macular OCT scans is highly reliable when performed by experienced raters and can thus be applied in multicenter settings. Reliability can be improved by restricting analysis to the perimacular area and compound segmentation of GCL and IPL.

[NPub.org/N2/9111a](https://pubmed.ncbi.nlm.nih.gov/291111a/)

Thymectomy lowers the myasthenia gravis biomarker miR-150-5p

Objective The aim of the study was to analyze the effect of thymectomy on the proposed disease-specific microRNA (miRNA) biomarkers miR-150-5p and miR-21-5p in patients from the prospective randomized trial of thymectomy in myasthenia gravis (MG) (MGTX trial) and to evaluate the longitudinal changes in clinical patterns compared with these miRNA levels.

Methods Serum samples were obtained from 80 patients with MG who were included in the MGTX trial. Thirty-eight patients were randomized to thymectomy plus prednisone treatment, and 42 patients were randomized to prednisone treatment. Serum samples were analyzed for the expression of miR-150-5p and miR-21-5p, with quantitative reverse transcriptase PCR at baseline and at 12, 24, and 36 months after randomization. The inclusion criteria for participation in the MGTX trial were age 18–65 years, generalized MG (Myasthenia Gravis Foundation of America Class II–IV), disease duration of less than 5 years, and seropositivity for acetylcholine receptor antibodies (AChR+).

Results Patients treated with thymectomy had lower levels of miR-150-5p at 24 months, both compared with baseline values ($p = 0.0011$) and the prednisone group ($p = 0.04$). No change in miRNA levels was found in the prednisone group. Levels of miR-21-5p displayed a negative correlation with the prednisone dose within the prednisone-only group ($p \leq 0.001$).

Conclusions Thymectomy lowers the levels of the proposed biomarker miR-150-5p, which strengthens its position as a potential disease-specific biomarker for AChR + MG.

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