

## THE EFFECT OF ELECTROCONVULSIVE THERAPY ON THE CHOROID LAYER IN PSYCHIATRIC DISORDERS: AN OPTICAL COHERENCE TOMOGRAPHY STUDY

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**BACKGROUND AND AIM:** Optical Coherence Tomography (OCT) is the optical analogue of ultrasonographic imaging. OCT obtains tomographic cross-sectional images from the choroid, the vascular layer of the eye. Electroconvulsive therapy (ECT) has been reported to enhance vascular endothelial growth factors and promote neuroplasticity. This study aimed to investigate the short- and long-term effects of ECT on the choroid and to examine the clinical factors that may influence these effects.

**METHODS:** The study included inpatients aged 18–65 years with any psychiatric disorder for which ECT was indicated at a university hospital. Patients with systemic or neurological diseases affecting the eye were excluded. A minimum of eight effective ECT sessions were administered three times per week. Choroidal thickness was measured by OCT before ECT, immediately after ECT, and at the 12th week following ECT. Post-ECT assessments were completed in 31 patients, and 11 patients were evaluated at the 12-week follow-up. Due to the COVID-19 pandemic, the study lasted one year and the targeted sample size could not be reached. Ethical approval was obtained from the Pamukkale

University Faculty of Medicine Ethics Committee (10.12.2019, No: 21).

**RESULTS:** Of the patients, 15 (48.4%) were male and 16 (51.6%) were female, with a mean age of  $36.55 \pm 13.12$  years. Sixteen patients (51.7%) were diagnosed with schizophrenia and related disorders, forming a heterogeneous diagnostic group overall. After ECT, a statistically non-significant increase was observed in the right choroid ( $p = 0.068$ ). At the 12-week follow-up, the change in left choroidal thickness was negatively correlated with age at illness onset ( $p = 0.036$ ).

**CONCLUSIONS:** ECT was associated with a non-significant early increase in choroidal vascularity. Earlier age at onset was associated with left choroidal thinning in the long term and a reduced response to ECT. Left choroidal thinning in early-onset patients may represent an endophenotypic marker of neurodevelopmental microvascular pathology.

**Keywords:** psychiatric disorders, electroconvulsive therapy, optical coherence tomography, choroid plexus