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Electroconvulsive Therapy Combined with Pharmacotherapy: Effectiveness and Safety in Treatment-resistant Schizophrenia

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Electroconvulsive therapy (ECT) is considered an effective and safe treatment. However, the possibility of cognitive adverse effects has raised a question about neuronal damage.

Neuron-specific enolase (NSE) and S100b protein (S100b) were measured to determine whether ECT induces neuronal injury or glial activation. C-reactive protein (CRP), creatine phosphokinase (CPK) and CPK-MB levels were also measured.

Present study was conducted in 14 patients with treatment-resistant schizophrenia (29,4±7,7 years old) that underwent combined ECT (10 ECTs on average) and pharmacological treatment. Blood samples were obtained before the beginning of ECT, 24 hours after the third and sixth ECTs.

CRP levels indicated the presence of slow inflammatory process. There was no increase in NSE or S100b concentrations that could be associated with the impact of ECT. Significant CPK increases were observed in two patients, maximum at the baseline point; muscle tissue damage was indicated as the cause.

Average reduction of PANSS score was 28,8%, and PANSS scores were never significantly correlated with biomarkers' concentrations. Patients with greater disease duration and more impaired constructive praxis were characterized by higher, though not usually abnormal, levels of NSE after ECT.

The results of the present study demonstrate that electroconvulsive therapy combined with pharmacotherapy is safe and effective for the drug treatment resistant group of schizophrenic patients. No significant neuronal damage associated with ECT and cognitive impairment was found. At the same time, increased CRP suggests a presence of chronic inflammation in the vascular wall, which supports a role of inflammatory mechanisms in schizophrenia.

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