

Is Electroconvulsive Therapy Improving Executive Functions in Unipolar Depression Patients?

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In an acute episode of unipolar depression, patients show lower performance on the tests which make substantial demands on executive functions. Several studies documented that the impairment sometimes remains even in remitted patient, partially due to the antidepressant side effects or ECT. The aim of the present study was to evaluate executive functions in subjects who underwent ECT for therapy-resistant depression.

Methods. A course of bilateral ECT (mean number of applications 8.8+/-3.2) was applied to 22 patients (age 46.3±9.8; males 45.8%;IQ 97.2±11.6) with baseline HAMD 28.5±3.6, DASS 95±15, MMSE 29.1±1.1, who were tested by Sockings of Cambridge (SOC) tests (Cambridge Automated Neuropsychological Test Battery) at baseline (T0), immediately after ECT (T1) and one month later (T2). ECT was delivered with a modern square-wave machine with EEG and ECG monitoring. Modified treatment was performed in all cases.

Results. The intensity of depressive symptoms (HAMD and DASS) was significantly reduced at T1 and T2 in comparison to baseline ($p < .001$) and MMSE was improved ($p < .001$). SOC improvement at both T1 and T2 in comparison to baseline was found in mean initial thinking time ($p = .002$) and mean subsequent thinking time ($p = .003$). Number of problems solved in minimum moves did not differ before and after ECT (range 7.8-8.2; $p = .639$).

Conclusion. ECT reduced depression without impairing executive function. As it is less likely that improvement in mean thinking time on SOC is directly associated with ECT, we suggest that improved execution is rather due to the decreased individual sensitivity to negative feedback during performing the task.