

P02-551

CLINICALLY EFFECTIVE ECT TREATMENT RESTORES VISUOSPATIAL LEARNING / MEMORY BUT NOT ATTENTIONAL FLEXIBILITY DEFICITS IN PATIENTS WITH MAJOR DEPRESSION

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Introduction: We recently demonstrated that patients with major depression (MDD) with and without electroconvulsive therapy referral (ECTs vs. NECTs) qualitatively differ in neuropsychological profile. ECTs presented severe executive but minor visuospatial memory deficits, suggesting mainly frontostriatal involvement; NECTs presented the opposite pattern, compatible with temporohippocampal involvement. Here we follow up on ECT treatment effects on both cognitive domains.

Method: 15 ECTs were assessed with Hamilton Depression (HAMD-24), Hamilton Anxiety (HAMA) and Mini-Mental State Examination (MMSE) scales and 5 tests of the Cambridge Neuropsychological Test Automated Battery (CANTAB) at hospitalisation (PRE-ECT), immediately after ECT (POST-ECT) and 2 months later (FOLLOW-UP). ECTs at FOLLOW-UP were also compared to 15 matched non-psychiatric CONTROLS who underwent neuropsychological testing once.

Results: There was significant clinical improvement (reflected by reduced HAMD-24 and HAMA scores: $p < 0.001$) between PRE-ECT and FOLLOW-UP. After a minor decline POST-ECT, MMSE scores showed significant increase at FOLLOW-UP ($p < 0.02$). At FOLLOW-UP, Paired Associates Learning (PAL) showed significant improvement ($p < 0.001$). Stockings of Cambridge (SOC) performance also improved (decrease in early abandonments, $p < 0.04$) POST-ECT and at FOLLOW-UP. However, clinical improvement did not result in improvement in Intra / Extradimensional Shift (IED): at FOLLOW-UP, ECT patients were indistinguishable from CONTROLS in all neuropsychological measures except IED ($p < 0.04$).

Conclusions: Clinically successful ECT treatment was accompanied by improved global cognitive functioning, visuospatial memory and spatial planning, but offered no benefit in attentional flexibility. This residual deficit suggests 'trait' frontostriatal involvement in this patient group.