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Lecture

Neuropsychological profile as a marker of major depressive disorder subtypes: contribution to treatment strategy formulation.

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Abstract

The findings from a series of studies on patients with damage to the prefrontal cortex, as well as experiments with functional neuroimaging on normal subjects, have highlighted the specialized role of the ventral part of the lateral prefrontal cortex

BACKGROUND: Pharmacoresistant patients with major depression (MDD) and electroconvulsive therapy referral (ECT) may present distinct neuropsychological profiles from drug-respondent patients. Such differences could help identify MDD subtypes, offering insights into the mechanisms underlying differential treatment response. The sensitivity of distinct neuropsychological deficits to clinically effective ECT could extend such insights.

METHOD: Depressed patients with (1) ECT referral (ECTs), (2) no ECT referral (NECTs) and (3) controls (matched groups, n=15) were assessed with Hamilton Depression, Hamilton Anxiety and Mini-Mental State Examination scales and five memory and executive function tests from the Cambridge Neuropsychological Test Automated Battery (CANTAB). ECT candidates were reassessed at the end of ECT (post-ECT) and 2 months thereafter (follow-up).

RESULTS: ECTs scored significantly lower than NECTs in the MMSE ($p=0.01$). NECTs performed worse than Controls in Paired Associates Learning (PAL) task ($p<0.03$; Controls/NECT $p<0.01$) and Spatial Recognition Memory (SRM: $p<0.05$; Controls/NECTs $p<0.05$); ECTs differed neither from Controls nor from NECTs. In Intra/Extradimensional shift (IED), ECTs performed worse that Controls and NECTS (IED: $p<0.01$; Controls/ECTs $p<0.01$) in phases reflecting attentional flexibility. In Stockings of Cambridge (SOC), ECTs tended to abandon prematurely ($H=11$, $p<0.01$) but those who completed SOC performed comparably to the other groups. ECT was effective in relieving MDD. After a post-ECT decline, patients exhibited improvement in PAL and SOC but their IED deficit remained unaffected.

CONCLUSIONS: A double dissociation emerged in ECTs vs. NECTs neuropsychological profiles. ECTs showed significant flexibility deficits but mild memory deficits; NECTs presented the opposite pattern, suggesting frontostriatal involvement in ECTs vs. temporal NECTs involvement. Attentional flexibility deficits may constitute a neuropsychological trait-like feature of pharmacoresistance.

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