

**Electroconvulsive therapy reduces frontal cortical connectivity in severe depressive disorder**

Perrin JS, Merz S, Bennett DM, et al (Univ of Aberdeen, UK; et al)  
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To date, electroconvulsive therapy (ECT) is the most potent treatment in severe depression. Although ECT has been successfully applied in clinical practice for over 70 years, the underlying mechanisms of action remain unclear. We used functional MRI and a unique data-driven analysis approach to examine functional connectivity in the brain before and after ECT treatment. Our results show that ECT has lasting effects on the functional architecture of the brain. A comparison of pre- and posttreatment functional connectivity data in a group of nine patients revealed a significant cluster of voxels in and around the left dorsolateral prefrontal cortical region (Brodmann areas 44, 45, and 46), where the average global functional connectivity was considerably decreased after ECT treatment ( $P < 0.05$ , family-wise error-corrected). This decrease in functional connectivity was accompanied by a significant improvement ( $P < 0.001$ ) in depressive symptoms; the patients' mean scores on the Montgomery Asberg Depression Rating Scale pre- and posttreatment were 36.4 (SD = 4.9) and 10.7 (SD = 9.6), respectively. The findings reported here add weight to the emerging "hyperconnectivity hypothesis" in depression and support the proposal that increased connectivity may constitute both a biomarker for mood disorder and a potential therapeutic target.

► This study lends credence to the emerging theory that hyperconnectivity is probably involved in the pathophysiology in depression. They used electroconvulsive therapy (ECT), certainly the most powerful treatment in depression, to explore this hypothesis with functional MRI. The authors did in fact find that connectivity in the left dorsal lateral prefrontal cortex was considerably decreased after ECT and correlated with significant improvement in depression. This is an ingenious study and potentially an important one.

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**Long term follow up of suicide in a clinically depressed community sample**

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*Background.*—The purpose of this study was to examine how sex differences in suicide rates unfolded in a long-term follow up of patients who had been diagnosed with major depression.

*Method.*—Patients who were diagnosed with major depression in the Chichester/Salisbury Catchment Area Study were followed for 49 years. Recorded deaths from suicide were compared with rates that were predicted from historical data on suicide mortality rates from 1960 onwards.