

## Age as a Risk Factor for Predicting Cognitive Deficits Following ECT

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**Background:** Electroconvulsive therapy (ECT) is the most acutely effective treatment for severe depression but is limited by cognitive side-effects, to which older adults may be more vulnerable. The most common form of ECT worldwide uses bitemporal (BT) electrode placement which is more powerful than right unilateral (RUL) placement but is associated with more cognitive deficits. However, RUL-ECT at higher electrical doses may be as effective as BT-ECT but with less cognitive side-effects. The aim of this trial is to compare the effectiveness and cognitive side-effects of high-dose RUL-ECT with standard BT-ECT.

**Methods:** We carried out a pragmatic, two-group, parallel-design, randomised, non-inferiority trial (ISRCTN23577151) of twice-weekly BT-ECT at 1.5 times seizure threshold versus high-dose RUL-ECT at 6 times seizure threshold for patients with a major depressive episode. 138 patients (69 per group) were randomised to ensure adequate power to assess non-inferiority of high-dose RUL ECT. The primary outcome was the Hamilton Rating Scale for Depression (HRSD-24) score at end-of-treatment and the pre-specified non-inferiority margin was 4.0 points. Secondary outcomes included response, remission and relapse rates plus cognitive performance during and after the allocated ECT course with a six-month follow-up.

**Results:** Recruitment was from May 2008 until November 2012. Overall, high-dose RUL ECT was non-inferior to BT ECT with respect to the HDRS-24 at the end of ECT course (mean difference 1.2 points in favour of RUL ECT (95% CI, -1.51 to 3.995)). Analyses of the effects of age on recovery of orientation after individual treatments and cognitive performance soon after completion of the ECT course and during the six-month follow-up will be presented and discussed.