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Self-evaluation of the cognitive effects of ECT

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Objectives: Numerous studies have found that subjective memory improves shortly following ECT using standard self-evaluation questionnaires. These changes covary strongly with mood state while being not associated with objective memory tests or treatment parameters. This study compared patients' evaluations of the cognitive effects of ECT using a novel direct interview about subjective global impact and standard methods.

Methods: We conducted a prospective, randomized, double-masked trial of the effects of pulse width (0.3 vs. 1.5 ms) and electrode placement (right unilateral vs. bilateral) on patients' evaluations of cognitive outcomes. Subjective evaluations were obtained prior to starting and during the week following the randomized ECT course, using the Cognitive Failures Questionnaire (CFQ), Squire Memory Complaint Questionnaire (SMCQ), and the novel Global Self-Evaluation of Memory (GSE-My). An extensive neuropsychological battery was administered at the same time points.

Results: CFQ and SMCQ scores improved at postECT relative to preECT. At both time points, these scores were strongly associated with HRSD scores and not with objective deficits or treatment parameters. In contrast, on the GSE-My patients reported a deleterious memory effect after ECT. GSE-My scores were also associated with objective memory loss and treatment technique.

Conclusions: Characterization of patients' experience of cognitive side effects following ECT differs markedly depending on the assessment method. Direct questioning about global impact revealed more negative views about ECT's impact. These results support the findings of a prospective, naturalistic, observational community study representing together the first reports of concordance between subjective and objective measures of ECT's effects on memory.

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Deep brain stimulation in treatment-refractory major depressive disorder: Preliminary results in three patients

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Background and aims: Deep Brain Stimulation (DBS) is a neuromodulation technique that involves the implantation of electrodes into specific parts of the brain. DBS is reversible, nondestructive, and can be modified by adjustment of the stimulator settings after implantation. Since 1998 we investigate DBS as a therapeutic option for severe, treatment-refractory obsessive-compulsive disorder (OCD). DBS in the anterior limbs of the internal capsules induced clinically significant therapeutic benefit in this patient group, not only in severity of OCD symptoms, but also on the patient's mood scores.

Despite advances in biological treatment and psychotherapy for major depression (MD), a substantial number of patients fail to improve.

Based on the results of DBS in OCD, this study investigates the effectiveness, safety, and tolerability of DBS in the same target for treatment-refractory MD.

Methods: Three patients with a longstanding history of MD, who failed to improve even after years of pharmacotherapy, psychotherapy, electroconvulsive therapy and even experimental interventions were selected. Bilateral DBS leads were implanted in the ventral part of anterior limb of the internal capsule. Participants underwent standardized and detailed psychiatric assessments on a regularly scheduled basis, both pre- and postsurgically.

Results: After six months of chronic DBS, all three patients showed a clinically significant reduction in depression severity of 50 percent or greater on the Montgomery-Asberg Depression Rating Scale. Two of the three patients were in remission. Quality-of-life measures improved as well.

Conclusions: Further research is warranted, but patients with severe, longstanding, treatment-refractory MD may benefit from DBS.

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New electromagnetic (quantum) therapeutic tools (specially) in depression, schizophrenia, parkinson's disease and dementia

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Electronic brain implants and electromagnetic pulses work better for some people who suffer from psychiatric disorders than Electroconvulsive therapy, psychopharmacotherapy or psychotherapy. These biomedical therapeutic tools include: Artificial Hippocampus; Deep Brain Stimulation (DBS); Vagus Nerve Stimulation (VNS); Magnetic Seizures Therapy; repetitive Transcranial Magnetic Stimulation (rTMS); and, transcranial Direct Current Stimulation (tDCS). In this communication, it is focused the use of rTMS, in the treatment of Depression, Parkinson's Disease/Negative Syndrome of Schizophrenia and Auditory Hallucinations within Positive Syndrome of Schizophrenia (PSS), and of tDCS, in the treatment of Depression and Dementia, and highlighted some neural networks implicated in these syndromes, which dysfunction is reverted through the use of those technological therapeutic tools. Also, it is presented mathematical models of: the (oscillatory) glutamatergic NMDA mediated neurotransmission system; and the Auditory Hallucinatory activity (within PSS). A nanodevice's project (sponsored by US Foresight Institute for Nanotechnology), for monitoring brain activity, at a subatomic level, during administration of rTMS and tDCS is also presented. NASA had elected DBS, VNS and rTMS, to be used in selected populations, due to their neuromodulator, neuroplastic and neuroprotective effects.

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A rare case of dissociative fugue with unusually prolonged amnesia successfully resolved by ECT

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Case history: Young adult woman was admitted to our department with symptoms of depression. The patient had a history of sexual abuse in her childhood. After her admission she received antidepressive treatment with a selective serotonin reuptake inhibitor (sertraline) as well as supportive therapy.

Course of the disease: After a four months treatment the patient suddenly disappeared from her hometown. Some days later she was

found by the police in a city hundreds of miles away. She had no memory of her previous life and identity and named herself with a new name. The patient was diagnosed as having dissociative fugue. For five months after the diagnosis was made the patient remained amnesic for her identity and autobiographical memory. No pharmaceutical medication was administered; only psychotherapy. The patient began to have suicidal thoughts which led to her hospitalization.

Treatment: A course of electroconvulsive therapy (ECT) as well as SSRI medication (venlafaxine, initially 75mg and then 150 mg) was administered. Following the fifth course of ECT the patient recalled all of her past memory.

Conclusions: The electroconvulsive therapy has not been shown to be an effective or appropriate treatment for dissociative disorders; some authors have indicated that it may be important in relieving an associated depression.

There are no reports on the use of ECT for dissociative fugue.

This patients paradoxical recall of memory following a course of ECT treatment forced us to this announcement.

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rTMS added to usual treatment for older patients with depression

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Background: Depressive disorders are common in the older patients. There is a high level of non-response in this population. While there are many treatments available, side effects to medication continues to be a major issue. Electro Convulsive Therapy (ECT) is commonly used, but is associated with a high incidence of cognitive side effects. We hypothesized that rTMS may be a useful treatment for depressed elderly.

Methods: Elderly (over 60 years) in or out patients with Major Depressive Episode within Major Depressive or Bipolar Disorders were treated open label with high frequency, left sided repetitive transcranial magnetic stimulation (rTMS) for ten sessions. They all had at least one adequate trial of antidepressants or mood stabilizers

Results: Twenty nine patients, average age 69.3, range 60-89, 41% males, took part in this prospective study. Hamilton Depression Rating Scale score reduced from 24 at baseline to 17 at the end of treatment and to 16 two weeks after the treatment ended. Hamilton Anxiety Rating Scale also reduced from 20 to 14. There were no cognitive side effects as measured by MMSE. Only one patient dropped out of the study due to side effects

Conclusions: rTMS seems to be a safe and effective method for treatment of depressed elderly patients. There is a need of larger randomized controlled studies.

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Demographic and clinical predictors for the efficacy of electroconvulsive therapy

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Background and aims: This study was a retrospective review on use of electroconvulsive therapy (ECT) in a Military Medical Academy, Belgrade, Serbia. Aim of the study was to determine demographic and clinical predictors of ECT outcome.

Method: The study subjects were 120 patients (59 male and 61 female) treated with bilateral ECT over the period 2000-2004. Data extracted from clinical records included demographic variables (age, sex, education and heredity of psychiatric illness) and clinical characteristics (diagnosis, duration of illness, episode duration, comorbid psychiatric disorders, presence of psychosis, previous hospitalizations, and ECT variables). As outcome measure was used Clinical Global Impression (CGI) scale.

Results: The significant sex difference was found concerning age and diagnosis. Female patients were much older (mean age=46.9 years, SD=14.3) compared to male patients (mean age=35.4 years, SD=14.1), with much longer duration of illness (mean=88.7 months, SD=95.8), compared to male patients (51.9 months, SD=58.1). After a clinical course of ECT, 52.5% of all patients were rated as "much", and 40% as "very much" improved on the CGI. Statistically significant predictors of remission were sex and the number of previous hospitalizations.

Conclusion: Significant improvement after use of electroconvulsive therapy was associated with sex and the number of previous hospitalizations, but not with age or duration of illness or presence of psychosis.

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The changes of brain electrical activity after cerebellar rtms revealed by loreta (low resolution brain electromagnetic tomography)

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Background: The previous studies have detected changes of brain electrical activity (current density) after cerebellar rTMS. We suppose that right cerebellar rTMS evokes changes in the left frontal cortex. The aim of our study was to determine if 1Hz and 10Hz cerebellar rTMS induces antagonistic effect in frontal electrical activity.

Methods: We used 10 minutes of 10 Hz and 10 minutes of 1 Hz rTMS (both with 600 impulses, application over the right cerebellar hemisphere) in two sessions. 31-channel EEG was recorded in 10 right-handed healthy volunteers before and after rTMS. The 3D distribution of the current density was revealed by a method of qEEG-Low Resolution Brain Electromagnetic Tomography (LORETA, Pascual-Marqui et al. 1994; 1999).

Results: After right cerebellar 1 Hz rTMS the current density decreased in the alfa2, beta1, beta2 and beta3 band over the frontal cortex including medial frontal cortex and anterior cingulate. After 10 Hz rTMS we found a decrease over the frontal cortex in the delta, theta and alfa1 band bilaterally, more on the left side (p<0.01).

Conclusions: Our results suggest the possibility to influence the frontal cortical activity by means of the cerebellar 1Hz and 10 Hz rTMS (antagonistic effect in the frontal cortex- decrease in slow frequencies after 1 Hz and in fast frequencies after 10 Hz rTMS).