FrSBe- Patient Rating Form	Baseline (12/20/2019)	Post-treatment (1/27/2020)
Apathy T-score:	67	69
Disinhibition T-score:	56	58
Executive Dysfunction T-score:	70	61

FrSBe- Family Rating Form	Baseline (12/21/2019)	Post-treatment (1/27/2020)
Apathy T-score:	33	47
Disinhibition T-score:	35	43
Executive Dysfunction T-score:	34	43

FrSBe – Subscale	Description
Apathy (A)	Problems with initiation, psychomotor retardation, spontaneity, drive, persistence, loss of energy and interest, lack of concern about self-care and/or blunted affective expression.
Disinhibition (D)	Problems with inhibitory control such as impulsivity, hyperactivity, socially inappropriate behavior and poor conformity to social conventions.
Executive Dysfunction (E)	Problems with sustained attention, working memory, organization, planning, future orientation, sequencing, problem solving, insight, mental flexibility, self-monitoring of ongoing behavior and/or the ability to benefit from feedback or modify behavior following errors.

FrSBe T-score	Interpretation
Less than 60	Normal
60-65	Borderline impairment
More than 65	Clinically Significant

COMBINATION THERAPY WITH TRANSCRANIAL MAGNETIC STIMULATION AND KETAMINE FOR TREATMENT-RESISTANT DEPRESSION: A LONG-TERM RETROSPE

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Background: Repetitive Transcranial Magnetic Stimulation (rTMS) is a safe, effective and non-invasive treatment for many psychiatric illnesses, including treatment-resistant depression (TRD). Ketamine, an NMDA receptor antagonist, is also an effective antidepressant. This retrospective review examined the clinical benefits of combining these two established treatments for patients suffering from TRD in a novel approach coined combination TMS with ketamine (CTK).
Methods: A group of 28 adult patients with a primary diagnosis of unipolar (n=18) or bipolar (n=10) depression received three CTK treatments a week at a private neuropsychiatric practice. Patients were given a concurrent treatment of rTMS (1Hz; 40 minutes; 130% of motor threshold) with bio-marker-determined IV ketamine infusions (0.2-4.7 mg/kg; 30 minutes). The TMS coil was positioned on the mid-prefrontal area. Frequency of treatment was dependent on patient responsiveness (10-30 sessions), which was measured as symptom reduction on the Clinical Global Impression (CGI) scale. CGI data was evaluated pre-treatment, post-treatment and at two-year follow-up.
Results: Mean reduction in CGI severity for the patient group following CTK was 4.46 ± 0.54 at a 99% confidence interval and was deemed statistically significant using a paired t-test (α=0.01, t=22.81 $p < 0.0001$). This significant reduction in CGI severity was sustained for at least 2 years following treatment completion.
Conclusions: Despite years of unsuccessful treatments, all 28 patients in this trial obtained substantial and enduring reductions in their depressive symptoms following CTK therapy. Further research into method optimization and randomized controlled trials are warranted.

DEEP TMS FOR MAJOR DEPRESSION, INTERIM POST-MARKETING ANALYSIS OF 1040 PATIENTS.

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Conflicts of Interest: Aron Tendler, Yiftach Roth and Abraham Zangen have a financial interest in BrainsWay. Aron Tendler, Steven A. Harvey, Mark DeLuca, Jimmy Stehberg, Richard Naimark, David Schmidt, Owen Muir, Carlene McMillan, Saad Shakir, Todd Antin, Diana Ghelber, Walter Duffy, Natalie Lender, Michael Goodman, Moshe Isserles, Kenneth Melman, Juan Cabrera Jr., Faisal A. Munasifi, David Jones, Jagdeep Kaur, Irkali Mania, Sabeen Faris, Zeeshan Faruqui, Shahid Insaf, Deborah Kim, Susan Rushing and Brent Nelson have a financial interest in commercial TMS.
Background: Despite the availability of deep transcranial magnetic stimulation (dTMS) for major depressive disorder (MDD) in 2013, its' real-world clinical practice efficacy is unknown.
Methods: All dTMS sites were offered compensation for treatment and outcome data. Outcome measures included clinician based scales (CGI-S, HDRS-21 and MADRS) and self-questionnaires (PHQ-9, BDI, IDS). Analyses included remission and response rates after 20 and 30 dTMS sessions, number of sessions and days required to reach first response, first remission, sustained response and sustained remission.
Results: 29/481(6%) of H1 sites submitted treatment and outcome data for 1040 patients. Remission (response) rates were 36.2% (65.1%) and 48.1% (72.5%) after 20 and 30 dTMS sessions, respectively. Remission rates were highest when assessed by HDRS. Mean number of sessions (days) for first response were 10.3 (18.6) with CGI-S, 14.9 (24.9) with PHQ-9, 18.0 (33.3) with BDI, and 17.1 (28.3) with HDRS. Mean number of sessions (days) for first remission were 14.4 (28.5) with CGI-S, 21.8 (45.0) with PHQ-9, 20.6 (42.8) with BDI, and 18.1 (30.7) with HDRS. The rates of patients who achieved first remission (response) were 50.5% (62.1%) with CGI-S, 58.9% (84.6%) with PHQ-9, 75.3% (86.7%) with BDI, and 78.5% (89.7%) with HDRS. The rates of patients who achieved sustained remission (response) were 61.4% (90.0%) with CGI-S, 47.0% (80.0%) with PHQ-9, 65.9% (79.5%) with BDI, and 70.9% (83.2%) with HDRS.
Conclusions: The majority of MDD patients benefit from dTMS, with the onset of improvement before the 20th session. Many initial non-responders benefit from a longer treatment course.
Funding: BrainsWay

IS IT SAFE TO GO HIGHER? TREATMENT AT 140% OF MOTOR THRESHOLD

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