CONCLUSIONS: This study aims to provide guidance as to whether rTMS is an efficacious therapy for comorbid mTBI/PTSD. Preliminary data indicates it to be a tolerable and safe therapy. Future research should consider decreasing the demand of the study on patients schedules, and performing a comparison to other mTBI/PTSD treatments to determine what treatment is more efficacious.

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Repetitive Transcranial Magnetic Stimulation as a Protective Measure Against Early-Onset Alzheimer's Disease: A Case Report

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DISCLAIMER: The views expressed in this abstract are those of the authors and do not reflect the official policy of the Department of Army/Navy/Air Force, Department of Defense, or U.S. Government.

BACKGROUND: Alzheimer s disease (AD) is a progressive neurodegenerative disease leading to cognitive decline and eventually death. Degradation of cortical neuroplasticity is thought to be a major catalyst of AD-related cognitive decline. Repetitive transcranial magnetic stimulation (rTMS), which uses pulsed magnetism to stimulate neurons, increases cortical plasticity and induces long-lasting neuroplastic changes. Patients have benefited from rTMS to treat AD, especially when done in conjunction with cognitive training exercises. This case report presents a 31-year-old male who tested positive for an autosomal dominant mutation implicated in early-onset AD. rTMS and cognitive training were employed to assist in the delay of early-onset AD manifestation in two cycles.

METHODS: Prior to each treatment cycle, the patient completed questionnaires and interviews designed to test his cognitive functioning; his spouse was interviewed to provide a third-party assessment of his functioning. Following pre-treatment data collection, 30 daily rTMS/cognitive training sessions were completed in the first cycle and 35 daily rTMS/cognitive training sessions were completed in the second cycle. The bilateral dorsolateral prefrontal cortices each received 1,000 pulses (10 Hz, 110% SMT). Tolerability and side effect data were collected after each treatment. Immediately following rTMS, the patient played cognitive training games at our Brain Fitness Center. All pre-treatment assessments were repeated after completion of the 30 sessions in the first cycle and the 35 sessions in the second cycle for comparison of pre- to post-treatment cognitive functionality.

RESULTS: Pre-treatment testing indicated the patient was asymptomatic before each cycle. The patient completed 30 daily rTMS sessions in the first cycle and 35 daily rTMS sessions in the second cycle. Tolerability/side effect data showed he tolerated treatment well and experienced only minor pain. The patient also completed 30 cognitive training sessions in the first cycle and 35 cognitive training sessions in the second cycle and showed moderate improvement across all cognitive domains. Post-treatment assessments indicated no change in functioning except to note the patient s improved sleep. A third treatment cycle is scheduled to begin in February 2020.

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CONCLUSIONS: This case report supports rTMS paired with cognitive training to be a safe and tolerable treatment for early-onset AD. However, more treatment cycles must be completed before conclusions about its efficacy can be determined.

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CME on Pharmacogenomics Testing Improves Knowledge, Competence, and Confidence Related to Implementing Testing in Practice

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ABSTRACT: Study Objective(s): Pharmacogenomics (PGx) testing, in particular combinatorial PGx testing, represents a potential means for delivering personalized treatment selection for patients with psychiatric disorders. The goal of this educational intervention was to educate clinicians about the role of PGx testing in neuropsychiatric conditions such as MDD, how these novel tests may be implemented into clinical practice, and how results may be used to inform decision-making.

METHOD: Psychiatrists (n=830) participated in an online enduring CME activity on PGx testing in psychiatric disorders

- The format was a 30-minute 2-person discussion (launched December 7, 2018)
- Data from this activity were collected for 30 days after launch
- Effectiveness of education for the CME activities was analyzed using 3 multiple-choice and 1 self-efficacy question (5-point Likert-type scale), presented as pre-/post-CME repeated pairs
- A paired samples t-test was conducted to examine improvements in mean confidence pre and post

Participant knowledge, competence, and confidence change in pre- to post-CME responses were calculated

RESULTS: Overall, 72% of psychiatrists (n=830) had knowledge or competence that was reinforced or improved as a result of education.

FOLLOWING EDUCATION:

* 56% and 12% of psychiatrists had reinforcement and improvement, respectively, in knowledge related to the clinical benefits of PGx-guided treatment strategies
- 61% and 8% of psychiatrists had reinforcement and improvement, respectively, in competence related to interpreting PGx tests for patients with neuropsychiatric disorders
- Within the group of psychiatrists with reinforced and improved knowledge/competence, there was a 30% increase in their confidence using PGx tests to help guide treatment decisions for patients with major depressive disorder (MDD) (M pre=2.14, post=2.77, scale 1 to 5)
- Confidence in the use of PGx testing was correlated with likelihood of considering PGx testing for patients with MDD

CONCLUSIONS: Online CME aided in psychiatrists' knowledge, competence, and confidence in using pharmacogenomics testing in patients with psychiatric disorders.
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Efficacy and Safety of SEP-363856, a Novel Psychotropic Agent with a Non-D2 Mechanism of Action, in the Treatment of Schizophrenia

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ABSTRACT: Background: SEP-363856 is a novel psychotropic agent that has shown broad efficacy in animal models of schizophrenia and depression. Its antipsychotic effects appear to be mediated by agonist activity at both trace amine-associated receptor 1 (TAAR1) and 5-HT1A receptors. Notably, SEP-363856 does not bind to any dopaminergic, serotonergic (except 5-HT1A), glutamatergic, or other neuroreceptors thought to mediate the effects of currently available antipsychotics. The aim of this study was to evaluate the efficacy and safety of SEP-363856 in acutely symptomatic patients with schizophrenia.

METHOD: Patients aged 18-40 years meeting DSM-5 criteria for schizophrenia (PANSS total score ≥80) were randomized, double-blind, to 4-weeks of flexible-dose SEP-363856 (50 or 75 mg/d) or placebo. Efficacy measures included the Positive and Negative Syndrome Scale (PANSS) total score (primary), PANSS subscale scores, and the Clinical Global Impressions-Severity (CGI-S) score. Change from baseline in primary and secondary measures were analyzed using a mixed model for repeated measures (MMRM) analysis.

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