of those practicing ECT in a variety of settings. Three weekly follow-up attempts are planned to maximize the response rate.

Results: Aggregated data will provide the basis for reports of descriptive summary statistics to characterize the range of the current ECT practice. Particular attention will be paid to the degree to which ECT practices have changed passed on conclusions from randomized controlled trials. Statistical analysis will focus on associations between characteristics of ECT providers’ types and current practices.

Conclusions: Survey results and statistical analyses will be available at the time of the presentation, and after data collection has been completed.

Pregnancy and Electroconvulsive Therapy: A Multidisciplinary Approach

Jessica L. Coker, MD, Shona L. Ray-Griffith, MD, Nader Rabie, MD, Lou Ann Eads, MD, Zachary N. Stowe, MD.

Objective: The aim of the study was to scrutinize a series of pregnant women treated with electroconvulsive therapy (ECT) and evaluate the utility of fetal heart monitoring in the refinement of treatment guidelines for ECT during pregnancy.

Background: Major depression and suicidal ideation during pregnancy have been linked to both adverse maternal and fetal outcomes. Electroconvulsive therapy is considered a safe and efficacious treatment in pregnancy based on a limited amount of published case reports and case series.

Methods: A retrospective chart review identified pregnant patients with mental illness treated with ECT, their treatment course, and obstetrical outcomes.

Results: A total of 8 pregnant women treated with ECT were identified. Patients received a mean of 3.75 ECT treatments, and information was extracted from the medical record from a total of 30 ECT treatments across this group. All women were diagnosed with a mood disorder, with 5 of the 8 women having suicidal ideation. Two women experienced the following significant complications after the initial treatment: (1) an acute episode of second degree heart block and (2) acute onset of mania after ECT. Obstetrical complications included 2 women with preterm delivery—1 secondary to premature rupture of membranes. No other complications or adverse outcomes were recorded. The 5 women with SI had symptom resolution, and significant symptom improvement was noted in 5 of the 8 women.

Conclusions: Electroconvulsive therapy is a safe and effective treatment during pregnancy and of particular benefit in the acute treatment of suicidal ideation. Cross-sectional fetal heart monitoring provided no additional information influencing ECT procedures or follow-up.

Representations of ECT in English Language Film and Television in the New Millennium

Avery Matthews, Peter Rosenquist, W. Vaughn McCall.

Objective: The aim of the study was to survey the media landscape to determine whether media depictions of electroconvulsive therapy (ECT) were becoming more or less medically accurate.

Background: On television and film, ECT has often been portrayed as punitive and counter therapeutic. Anecdotally, many ECT candidates refuse treatment on the basis of what they have seen on screen and are surprised to learn that they will be given anesthesia and paralytics.

Methods: Titles were identified by searching Internet Movie Database (http://www.imdb.com), Google videos, and YouTube for ECT-related terms, as well as incidental encounters by the authors. Titles released after 2000 were investigated further. A Google search of a title would occasionally produce YouTube clips containing the ECT scene. If the ECT scene was unavailable on YouTube, it was viewed by Netflix or Amazon streaming services or by Netflix DVD rental service. If viewed, ECT scenes were examined for indication, personnel administering the treatment, use of bite block, use of anesthesia, use of paralytics, electrode placement, side effects, and therapeutic result.

Results: A total of 31 ECT scenes were viewed. Indications for ECT included depression with or without psychotic features, bipolar depression, schizoaffective disorder, schizophrenia, substance use disorders, ODD, delusional disorder, dissociative identity disorder, PTSD, seizure disorder, and an anesthetic before a lobotomy. It was used for torture and murder and also as an anemic. Patients were voluntary for ECT in only 26% of cases. Electrode placement was most often bitemporal (74%), followed by bifrontal (10%). Placement on the earlobes, cheeks, and absent electrodes was each shown once. Unilateral ECT was not shown. The majority of depictions (84%) featured the use of a bite block, whereas the minority featured the use of anesthesia (12%), EEG, (16%), or paralytics (6%).

Conclusions: The portrayal of ECT on television and on film has increased in frequency and decreased in realism in the new millennium. Advances in ECT are not reflected in the media.

TMS Over the Left Dorsolateral Prefrontal Cortex Modulates Frontostriatal Connectivity in Depression

Michael Avissar, Fontasha Powell, BJ Casey, Conor Liston, Marc Dubin From the Weill Cornell Medical College; New York, NY.

Objective: We tested whether repetitive transcranial magnetic stimulation (rTMS) over the left dorsolateral prefrontal cortex in depressed patients modulates frontostriatal functional connectivity (FC).

Background: Corticostral circuits are central to the pathophysiology of depression. Bold response to rewarding stimuli is decreased in the striatum of depressives and links to changes in FC between the ventromedial prefrontal cortex (vmPFC) and multiple striatal areas. Transcranial magnetic stimulation for depression normalizes elevated FC of the vmPFC with other structures of the default mode network. We hypothesized that a course of TMS for depression would modulate FC between the vmPFC and the striatum in treatment responsive subjects.

Methods: We treated 27 currently depressed, antidepressant-resistant participants with 25 daily treatments of 10-Hz TMS over a left dorsolateral prefrontal cortex stimulation site and measured symptom severity before and after TMS with the HAMD-24. Resting state fMRI during 6 minutes of wakeful rest was obtained using a 3T GE scanner within 3 days before beginning treatment and within 3 days after completing treatment. We measured FC between the head of the caudate and vmPFC.

Results: Functional connectivity between the caudate and vmPFC was greater after TMS than at baseline in the left hemisphere (paired t test, P < 0.01; cluster size, 16). There was a trend level increase in FC (paired t test, P < 0.05; cluster size, 16) in subjects with greatest improvement in HAMD-24 (by median split) but not in remaining subjects.

Conclusions: These results extend the candidate mechanisms of TMS to modulation of corticostriatal projections. Transcranial magnetic stimulation may function, in part, by enhancing top-down control in corticostriatal networks.

Neural Effects of rTMS: Single Neuron Recordings From a Rhesus Macaque

EM Grigsby, MJ Koval, VM Smith, JK Mueller, ZD Deng, A Peterchev, WM Grill, MA Sommer From the Duke University, Durham, NC.

Objective: The aim of the study was to study the effects of repetitive transcranial magnetic stimulation (rTMS) on single neurons in awake rhesus macaques.

Background: Repetitive transcranial magnetic stimulation has been used for the treatment of depression since FDA approval in 2008. Although many patients have benefitted from rTMS therapy, the overall efficacy has been limited. This may be attributable to the trial-and-error design of clinical rTMS protocols, which is a consequence of our current lack of understanding of the stimulation’s mechanism of effect.

Methods: Using custom-made electronics that were optimized to record neural activity in high magnetic fields, we were able to minimize the duration of the stimulus artifact in our recordings. This allowed us to capture and characterize neural activity at the site of stimulation (primary motor cortex) within milliseconds of a TMS pulse.

Results: There were clear changes in the spontaneous firing rates of single neurons, both during and after trains of rTMS. During 1 and 5 Hz rTMS, baseline firing rates dropped, suggesting a suppression of activity within the pulse train. After the trains of 1 Hz rTMS, baseline firing rates increased. One hertz rTMS has often been suggested to cause suppression of neural activity; however, this may be explained as an initial excitation that recruits inhibitory neurons preferentially, which then suppress larger networks of neurons in the area.

Conclusions: These results are among the first to provide a fundamental understanding of the relationship between rTMS parameters and neural activity, which should support a more rational approach of designing rTMS protocols for specific clinical needs.