SPRING/SUMMER 2024

UNIVERSITY OF LOUISVILLE DEPRESSION CENTER NEWSLETTER

UofL Depression Center Benefit Dinner Thursday, April 25, 2024 at 6 PM ET

The 2024 benefit event will provide an opportunity to support the essential work of the UofL Depression Center in providing much needed treatment services; educating students, residents, and practicing clinicians; performing fundamental research; and developing new treatments. Our key initiatives include using effective strategies for reducing the risk of suicide and performing studies of the genetics of severe depression, neurobiology of bipolar disorder, and ways to expand access to effective treatment.

The 2024 benefit event will include dinner and an inspiring presentation by Dr. Kevin Chapman and Kara Winger titled “Emotion Regulation and the Modern Athlete: Balancing Process and Outcome.”

Dr. Chapman is a Licensed Clinical Psychologist, founder and director of the Kentucky Center for Anxiety and Related Disorders (KYCARDS) where he specializes in the assessment and treatment of anxiety and related disorders. He will be joined by Kara Winger who led the United States women's javelin contingent for a decade and a half, winning nine national titles, landing on the U.S. podium fourteen years in a row, setting the American Record twice, competing in four Olympic Games, and six World Championships between 2008 and 2022.

Please contact Laura Burchfield at laura.burchfield@louisville.edu with any questions.

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UNIVERSITY OF LOUISVILLE DEPRESSION CENTER

Letter of Introduction to the Interim-Director of the University of Louisville Depression Center - Dr. Rif El-Mallakh

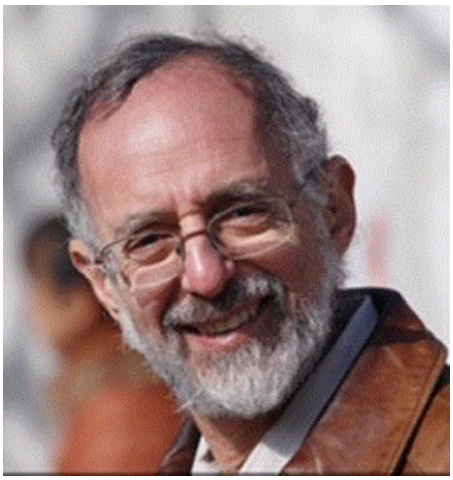
This newsletter marks the beginning of my term as the Interim Director of the Depression Center at the University of Louisville. I am sad that Dr. Jesse Wright, the Center's founding director, has stepped down to devote more time to the many things he has put off while taking care of the Center. Under Dr. Wright's leadership, the Center has matured in many ways.

The Center provides state-of-the-art care for mood disorders for people living in the Louisville Metro area. This includes both pharmacologic treatments and cognitive behavioral therapy. With the onset Coronavirus pandemic, the University of Louisville Department of Psychiatry and the Depression Center quickly developed the ability to provide care through the Internet. Virtual services continue to be available and represent approximately a third of all outpatient visits now in the post-pandemic period. To ensure that the care is appropriate, the Department undertook a quality assurance study that found that the care provided virtually was equivalent to care provided in person.

Additionally, faculty members in the department published scholarly work about the benefits and limits to the provision of psychiatric care virtually. Currently, with occasional exceptions, patients receiving their care in the outpatient psychiatric clinics of the University of Louisville have the option of either being seen virtually or in person.

Education is central to the University's and the Depression Center's mission. Education for students, residents, and health care professionals already in practice is provided every day at the Center. The Center sponsors an annual conference that addresses the needs of practicing clinicians based on surveys and feedback from previous attendees. We frequently bring experts from all over the world to present at this conference. It is typically very well attended with over 150 professionals every year.

The current issue of the Newsletter includes an article by Dr. Farooqui, an adjunct faculty member in the department. Dr. Farooqui has designed and implemented a curriculum for "interventional psychiatry" in our department. This article highlights the leadership role that our department has taken in expanding educational to include the most recent and exciting treatments for the most severely ill patients.



Dr. Rif-El-Mallakh
Interim Director, University of Louisville Depression Center

Education for the general public is also important. The Center typically provides a free public lecture on the eve of the annual conference that is usually well-advertised and open to anyone wanting to attend. The presenter is one of the experts brought in for the conference and is intended to be accessible to non-professionals. It is usually well-attended and well-received.

Furthermore, we sponsor the Hope Presentations. These are a series of lay lectures presented by University of Louisville faculty in venues around Louisville and dealing with a variety of topics that are important to patients and their families. The Hope lectures took a hiatus during the height of the Coronavirus outbreak, but will be started up again.

Research remains a major focus in our Department and for the Center. Ongoing projects include a National Institute of Mental Health-sponsored exploration of the genetic correlates of severe depression and a study examining the role of antidepressants in treatment-resistant depression. We just finished a study with a novel medication whose mechanism of action was specifically designed for the needs of patients with bipolar depression. Other projects include descriptions of the first use of injection of botulism toxin (Botox) for bipolar depression, the first use of pimavanserin (Nuplazid) as an adjunct to mood stabilizer in bipolar patients, and an ongoing research project examining the ability of lithium to protect against Coronavirus infection.

As the Interim Director, I aspire to continue all of these Depression Center activities. Upcoming projects will include more uniform assessments of research risk and implementation of evidence-based interventions to reduce suicides. We intend to reintroduce the routine quantification of symptoms of depression, anxiety, suicide, and mania in patients attending the outpatient Depression Center. These measures were routine prior to Coronavirus but were derailed by limitations imposed by the pandemic. We are working to expand our interventional services including obtaining a new transcranial magnetic stimulation (TMS) machine, ketamine infusions, esketamine nasal treatments, and botulism toxin injections.

We will continue to attempt to expand our research endeavors. Everyone can be a part of the great work of the Depression Center by donating financially to its activities or volunteering in other ways. I invite anyone reading this to contact me with their ideas or plans for contributions.

Advancing Psychiatric Education: Pioneering an Interventional Psychiatry Training Program for Residents

By: Ali A. Farooqui, M.D.

The field of psychiatry has evolved significantly in recent years, with a growing emphasis on the importance of interventional approaches. As the demand for effective treatments for mental health disorders continues to rise, it becomes crucial for psychiatric resident physicians to receive formalized education in this specialized area. Interventional psychiatry encompasses a range of therapeutic modalities, including but not limited to electroconvulsive therapy, transcranial magnetic stimulation, ketamine treatment, and Botox injections. These interventions have shown remarkable success in treating individuals with treatment-resistant conditions. Yet, without proper training, resident physicians may lack the knowledge and skills needed to utilize these innovative treatments safely and effectively.

Formalized education in interventional psychiatry during residency ensures that future psychiatrists are well-equipped to provide comprehensive care, expanding their toolkit and improving patient outcomes. It also fosters a deeper understanding of the technical and scientific considerations associated with these interventions, ultimately advancing the field of psychiatry and the well-being of those seeking mental health treatment. However, formalized training in interventional approaches is not standardized or commonplace in residency programs.

To meet this educational need, the University of Louisville Department of Psychiatry, in conjunction with Integrative Psychiatry, has pioneered a didactic curriculum for the training of resident physicians. This comprehensive program, featuring lectures, a Transcranial Magnetic Stimulation (TMS) lab, and an intensive month-long rotation in Electroconvulsive Therapy (ECT), TMS, and Ketamine therapy, is set to transform the way future psychiatrists are trained. The hands-on experience sets this program apart from traditional psychiatric education, making residents more confident and capable of performing procedures when they step into their roles as mental health professionals serving the needs of their patients.

Certain key elements of the curriculum include:

1. Review of landmark journal articles on the history, development, safety, and efficacy of interventional treatments.
2. Review of the latest developments in interventional psychiatry including cutting edge research on psychedelics, drug infusions, neuromodulation, and biofeedback.
3. Instruction on the selection of patients for appropriate interventional treatments.
4. Understanding the mechanisms of action of the various interventional approaches.
5. Clinical experience in evaluating for, and performing ECT procedures.
6. Learning TMS mapping and delivering TMS treatments with FDA approved and off-label protocols.
7. Delivering ketamine infusions in a controlled out-patient setting.
8. Learning the injection protocols for Botox for migraines and depression.

By providing a comprehensive and innovative learning experience, the University of Louisville Interventional Psychiatry program will prepare residents for the future of psychiatric practice.

Dr. Farooqui is in private practice at Integrative Psychiatry, PLLC and is a clinical faculty member of the Department of Psychiatry and Behavioral Sciences at the University of Louisville.

Neuromodulation in Child and Adolescent Psychiatry: perspectives in the treatment of Autism Spectrum Disorder.

By: Virginia Barbosa, M.D.

Autism Spectrum Disorder (ASD) is a complex, heterogeneous brain neurodevelopment disorder characterized by marked deficits in social interactions, verbal and nonverbal communication, stereotyped patterns of behaviors, circumscribed interests and sensory abnormalities. The prevalence of ASD has progressively increased. In 2020, data from the CDC indicates a prevalence of 1 in every 36 children (2.8%) at the age 8yo identified with ASD, a change from 1 in every 54 in previous years. ASD youth is frequently affected by multiple psychiatric conditions including major depression disorder, catatonia, ADHD, OCD and are at higher risk of committing suicide. In addition, they are highly vulnerable to adverse reactions to psychotropics, and non-pharmacological treatments could largely benefit this population.

Neuromodulation encompasses old treatments such as ECT (Electroconvulsive Therapy) and new approaches including rTMS (repetitive Transcranial Magnetic Stimulation). Numerous studies have recognized catatonia as a a frequent clinical condition associated to late regression in youth with ASD. Benzodiazepines and ECT are the main therapeutic tools of this potentially fatal condition that affects approximately 17% of the ASD individuals.

ECT is safely used in the treatment of patients with resistant severe mood disorders, catatonia as well as patients severely suicidal. In children and adolescents, ECT is always considered in refractory conditions likely due to stigma, limited clinical experience, concerns about long term side effects, however its use can be lifesaving and life transforming if carefully administered. ECT is a treatment given by a team of specialists including nurses and physicians. The nurse prepares the patient to the procedure and takes care of the patient during recovery. The anesthesiologist is responsible for the sedation and monitoring of the patient's vital signs and, maintenance of patient's clinical stability and, the psychiatrist applies the electric current in order to induce a seizure that can be hardly noticed due to the concomitant use of muscle relaxants.

In addition, TMS has emerged as an effective, noninvasive and safe tool in the diagnosis and treatment of psychiatric and neurologic disorders in the pediatric population after promising results in the adult population. According to the FDA, the rTMS system is an electromagnetic device that non-invasively delivers a rapidly pulsed magnetic field to the cerebral cortex in order to activate neurons within a limited volume without inducing a seizure. The current evidence suggests potential application in the treatment of children and adolescents with major depressive disorder, ASD, ADHD, Tourette's syndrome, epilepsy, cerebral palsy, dystonia. TMS has been used particularly in conditions where focal cortical under and over-activation is considered as main aspect of pathophysiology. In TMS, the electrical currents are induced in the cortex by fluctuating extra cranial magnetic field and have the ability to modulate cortical excitability. The treatment has been considered well tolerated in children and adults.

TMS has been FDA cleared for the treatment of OCD and anxious depression. Systematic reviews have suggested that both single-pulse and repetitive TMS have similar adverse effect profile to the adult population, which includes headaches, scalp discomfort, twitching, mood changes, fatigue, tinnitus with the most serious one including seizures with a risk less than 0.01%.

TMS protocols including Single Pulse TMS (spTMS) and Paired Pulse TMS(ppTMS) have a particular importance in ADHD prognosis and studies have signaled high correlation with disease severity and response to treatment. ppTMS has also demonstrated differences between Autism Spectrum Disorder children subgroups.

Single Pulse TMS has allowed the study of inter hemispheric inhibition in patients with ADHD by measuring ipsilateral silent period (iSP) metrics, which is shorter in children with ADHD, suggesting a compromised maturation of anterior callosal fibers and may correlate with severity of the illness. Further studies of children treated with methylphenidate showed increased iSP duration indicating improvement.

TMS has also been increasingly studied in combination with EEG (TMS-EEG) in the exploration of translational biomarkers for numerous psychiatric disorders.

Trials with high frequency repetitive TMS in children are limited, however, TMS may also provide an alternative therapeutic option for Tourette's syndrome. Le K and collaborators investigating patients younger than 16 years old and applying 1Hz LF-rTMS (110% rMT, 20 sessions) observed significant reduction of symptoms 4 weeks after treatment.

Several studies have targeted a range of cortical regions and symptoms with different rTMS protocols for children and adolescents with ASD. Despite the lack of large randomized controlled trials, open label studies have showed reduced problematic repetitive and compulsive behaviors in youth with ASD. In a randomized crossover trial, children showed improvement of CARS (Childhood Autism Rating Scale) scores and ATEC (Treatment Evaluation Checklist) after 20 sessions of rTMS. TMS has also been studied in the experimental treatment of children with epilepsy and the rationale has been supported by preclinical animal studies and early case series have showed reduction of seizure frequency after treatment, including case reports of children with refractory epilepsy.

In conclusion, despite the therapeutic challenges, the use of neuromodulation, including both old and novel approaches emerges as effective and promising tools in the therapeutic and investigational process of youth with psychiatric conditions, and potentially a viable, noninvasive alternative for individuals in the autism spectrum.

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