2016 Award

Principal Applicants: Patricia Colton & Paul Kurdyak

A Health Services Approach to Examining the Health Status, Health Care Utilization and Health Care Costs of Individuals with Eating Disorders in Ontario

Eating disorders (ED) are common psychiatric disorders that impose a substantial psychological, medical, and economic burden on individuals and their families. These disorders are often chronic and difficult to treat, co-occur with other psychiatric disorders, and have significant associated medical complications. Despite this, access to specialized ED treatment in Ontario is severely limited, with service provision occurring in a small number of regional centres of expertise.

There is substantial evidence on how to treat individuals with ED, but far less evidence to inform how to implement ED programs within a health system jurisdiction where a small number of services are clustered in large urban settings despite the wide geographic distribution of affected individuals. Furthermore, the evidence linking ED to specific medical comorbidities has relied mainly on studies based on convenience clinical samples. Such studies may elevate prevalence estimates of medical comorbidities, and are underpowered to detect relatively rare medical conditions. Finally, ED have been said to have the highest mortality rate of any psychiatric condition, but little population-based work and no longitudinal work have rigorously examined rates or causes of mortality in these disorders.

The work proposed capitalizes on a project that members of the research team completed in response to a request from the Ontario MOHLTC. We will use over 20 years of population-based health administrative data to measure how ED services are currently implemented, with a focus on access to care. We will also estimate costs associated with ED. We will determine the impact of ED on specific medical comorbidity outcomes and on mortality. We will also use this grant funding to establish a data linkage opportunity by linking clinical data collected at the TGH ED Program to ICES data as a future opportunity to conduct more detailed clinical ED research while exploiting system-level outcomes within ICES data.

2017 Award

Principal Applicant: Stefan Kloiber

Cannabidiol for Treatment of Social Anxiety - An Experimental Pilot Study with PET Imaging

Social Anxiety Disorder (SAD) occurs early in life and affects 2.5 million Canadians in one year resulting in individual suffering and large socioeconomic burden. More than 35 percent of SAD patients do not
benefit from conventional treatments with antidepressants or psychotherapy constituting an urgent need for investigation of new neurobiological mechanisms and effective treatments.

Deficient signaling of the endocannabinoid anandamide (AEA), a key neurotransmitter of the endocannabinoid system (ECS), through up-regulated metabolic activity of Fatty acid amide hydrolase (FAAH) has been suggested as neurobiological mechanism contributing to anxiety and impairment in social functioning. And, animal and small-scale human studies strongly suggest a therapeutic potential of the non-psychoactive phytocannabinoid Cannabidiol (CBD) for social anxiety.

Despite increasing therapeutic use of cannabis products for various clinical indications including anxiety, there is limited understanding of its mechanism of action, benefits and risks, and no in-vivo data on the brain ECS and its metabolic (FAAH) activity in SAD are available.

We propose the first randomized clinical pilot trial of CBD oil versus placebo in 40 young adults with SAD to evaluate feasibility of this innovative intervention and to receive preliminary insights in potential therapeutic effects, tolerability and safety and if CBD influences levels of circulating endocannabinoids. We will also use positron emission tomography (PET) of the novel, CAMH developed FAAH probe [11C]CURB to investigate if SAD is associated with elevated brain FAAH levels and lower circulating endocannabinoids in 20 SAD patients compared to healthy controls (HC).

Expertise of the research team, established facilities and techniques, the unique situation in Canada with licensed medical cannabis products, and the novelty of this clinical and neurobiological pilot project will provide important first insights in a potential new treatment and neurobiological correlates of SAD and will inform and facilitate subsequent larger clinical trials and grant applications.

2018 Award
Principal Applicant: Gwyneth Zai
d
Biomarkers of Obsessive-Compulsive Disorder and Treatment Response

Obsessive-compulsive disorder (OCD) is a chronic disorder with poor functional outcomes. It is characterized by deficits in cognitive flexibility, which refers the ability to switch between two different concepts. These hallmark deficits include difficulty shifting their attention from their obsessional thoughts, images, and/or urges that generate significant distress. OCD individuals cope with these inflexible distressing obsessions through repetitive and inflexible compulsive behaviours, acts, and/or rituals, which reinforce OCD symptoms. The underlying mechanism of cognitive flexibility remains largely unknown. Evidence from functional magnetic resonance imaging (fMRI) studies has supported the activation of specific brain regions, which have all been previously implicated in OCD. However, none have investigated the role of fMRI in determining brain changes that correlate to cognitive inflexibility, in addition to using multiple biomarkers to predict treatment outcome in a longitudinal approach. We propose to evaluate cognitive inflexibility using the CANTAB intra-extra-dimensional set shift (IED) cognitive task while concomitantly using fMRI to identify the brain circuit underlying deficits in cognitive flexibility in a longitudinal 6-month treatment study. We will recruit 60 well-characterized OCD participants over the next 2.5 years in a 6-month pharmacotherapy study in addition to 40 without treatment. Baseline assessment will include a comprehensive interview, questionnaires for symptoms and severity, IED task, fMRI during task performance, and a blood/saliva collection for DNA extraction and secondary genetic analysis. Individuals will be followed at 4, 8, and 12 weeks, and 6 months for
reassessment. IED task and fMRI will be repeated at 6 months. Linear mixed effects models will be performed to analyze longitudinal fMRI and cognitive data while capturing the effect of treatment in the model. Multi-variate predictive model analysis will be conducted using fMRI, cognitive, and genetic data that may predict treatment response. This powerful longitudinal design will potentially enable the discovery of biomarkers of treatment response.