



Comprehensive Research Experience for Medical Students Summer Research Program 2019

Supervisor/Project Information Form

Due February 20 2019 by email to crems.programs@utoronto.ca

Supervisor Name: Dr. Mark Boulos

Project Title: Strengthening Oropharyngeal Muscles as a Novel Approach to Treat Obstructive Sleep Apnea after Stroke: A Randomized Feasibility Study

Hospital/Research Institution: Sunnybrook Health Sciences Centre / Sunnybrook Research Institute

Email: mark.boulos@sunnybrook.ca

Field of Research (2 keywords):

- stroke
- sleep disorders

Department: Department of Medicine, Division of Neurology

School of Graduate Studies Appointment (IMS, LMP, IHPME etc)? Yes/No: If YES, please name:

Yes: Institute of Medical Science

Project Title: Strengthening Oropharyngeal Muscles as a Novel Approach to Treat Obstructive Sleep Apnea after Stroke: A Randomized Feasibility Study

Brief Project Description (<300 words):

Background: Obstructive sleep apnea (OSA) occurs in the majority of stroke survivors and is associated with greater mortality and poorer functional outcomes. Continuous positive airway pressure (CPAP) is the gold standard treatment for patients with OSA. However, despite having been demonstrated to improve post-stroke outcomes, rates of CPAP adherence are low. Overall, there is a major clinical need to develop an alternative well-tolerated and effective treatment for post-stroke OSA.

Oro-pharyngeal exercises (O-PEs) are used by speech-language pathologists to improve oro-motor strength and serve as a promising alternative approach to treat OSA. However, O-PEs have not been explored as a novel treatment intervention for OSA after stroke.

Study Objective: The goal of this study is to evaluate the feasibility of O-PEs in post-stroke OSA.

Methods: We will perform a randomized feasibility study involving stroke patients with OSA who are unable to tolerate CPAP. Patients will be randomized (1:1) to treatment using a pre-specified schedule of O-PEs vs. a sham control arm that has no impact on oropharyngeal strength. The OPEs and sham exercises will be delivered under the supervision of Dr. Yana Yunusova (speech language pathologist; study co-PI) by an SLP graduate student. Outcomes will be feasibility of the intervention, OSA severity (measured using ambulatory sleep equipment), sleep-related symptoms, and measures of oropharyngeal function.

Student role: The role of the medical student will be to assist with study recruitment and complete the baseline and 6-week follow-up assessments, as well as teach patients how to use the ambulatory sleep equipment. He/she will also assist with computing the statistical analyses for the study and preparation of the manuscript for publication. Moreover, this will be a unique opportunity to work in a multidisciplinary

research team. Finally, the student will also join Dr. Boulos in his clinics and learn about various sleep and stroke disorders.