



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. Dmitry Rozenberg

Project Title: Clinical Implications of Body Composition in Patients Undergoing Chronic Thromboembolic Endarterectomy

Hospital/Research Institution: Toronto General Hospital Research Institute, University Health Network

Email: Dmitry.Rozenberg@uhn.ca

Field of Research (2 keywords): Body Composition, Thoracic Surgery

Department: Medicine, Respiriology & Lung Transplantation, Assistant Professor

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

Project Title: Clinical Implications of Body Composition in Patients Undergoing Chronic Thromboembolic Endarterectomy

Brief Project Description (<300 words):

Background/Rationale: Chronic thromboembolic pulmonary hypertension (CTEPH) affects approximately 4% of patients after an acute pulmonary embolism and is characterized by residual thrombi in the pulmonary vasculature, pulmonary hypertension, and functional limitations. Pulmonary endarterectomy (PEA) is potentially a curative option, but up to one-third of patients undergoing PEA can have residual thrombi leaving these patients with significant functional impairments. One risk factor for increased thrombotic state is obesity, which can result in increased inflammation and impaired fibrinolysis, but it remains unclear whether obesity captured with body mass index (BMI) has negative consequences on post-operative outcomes after PEA. However, BMI is a poor measure of body composition and estimates of skeletal muscle mass and adiposity may be more informative of post-operative outcomes.

AIM: To evaluate the association of skeletal muscle mass and adiposity on post-operative recovery in exercise capacity, NYHA functional class, and pulmonary hypertension parameters.

Methods: Retrospective cohort study of 250 patients with CTEPH who underwent PEA from January 2007-December 2017 at the University Health Network. Body composition will be defined from computed tomography thoracic muscle cross-sectional area using Slice-O-Matic software, as previously described (Rozenberg D, 2017). Routine pre-operative data will be abstracted: demographics, BMI, pulmonary vascular resistance, six-minute walk distance (6MWD), and NYHA functional class. First-year post-operative outcomes such as NYHA functional class, 6MWD, and vascular disease will be characterized using a combination of echocardiographic and ventilation-perfusion imaging. Muscle mass and adiposity will be treated as continuous variables to assess the association with post-operative outcomes using multivariable regression models, adjusted for age, sex, and disease severity.

Significance: Measures of body composition may prove to be an important prognostic marker of post-operative outcomes and may help identify patients who may benefit the most from PEA. This may have important clinical implications on future pre-rehabilitation strategies such as nutritional counselling and exercise training.