Comprehensive Research Experience for Medical Students
Summer Research Program 2021
Supervisor/Project Information Form

Due February 24, 2021 by email to crems.programs@utoronto.ca

Supervisor Name: Dr Ahmed Kayssi

Project Title: Outcomes of Surgical Repair in Blunt Thoracic Aortic Injury

Hospital/Research Institution: Sunnybrook Health Sciences Centre

Email: Hannah.brooks@sunnybrook.ca

Field of Research (2 keywords): vascular surgery, trauma

Department: Vascular Surgery

School of Graduate Studies Appointment (IMS, LMP, IHPME etc)? Yes
If YES, please name: Yes, SGS (IMS)

Brief Project Description (<300 words):

Background: Blunt thoracic aortic injury (BTAI) is a life threatening surgical emergency resulting from sheering of aortic tissue. The whole aorta is susceptible to this injury, however the most commonly
affected area is the aortic isthmus. Patients with BTAI are usually critically ill, with accompanying injuries involving the chest wall, spine, and lungs, posing increased risk when considering traditional repair involving single lung ventilation, left heart bypass, and at times circulatory arrest. The advent of Thoracic Endovascular Aortic Repair (TEVAR) allowed for a less invasive treatment modality in an already critically ill patient population. It has been widely adopted in suitable candidates and has shown promising results in multiple case series and reviews. The smaller aortic diameters treated and the relative young age of this patient population raises concerns of durability, need for re-intervention, and follow up.

**Goal:** The goal of this study is to describe the medical, surgical, and/or endovascular management and outcomes of blunt thoracic aortic injury patients.

**Aims:**

- **Aim 1:** To describe the patient and injury characteristics associated with non-operative, endovascular and surgical management of BTAI.
- **Aim 2:** Determine the in-hospital and long-term outcomes of non-operative, endovascular and surgical management of BTAI.
- **Aim 3:** To compare outcomes of blunt aortic trauma patients according to management.

**Methods:** This is a retrospective-cohort study conducted at level 1 trauma centers in Ontario. Study data will be collected from the trauma registry and retrospective chart review. Data from initial admission, as well as same institution follow up visits, will be included. Long-term outcomes (late intervention, death) will also be captured through linkage to provincial administrative health records held at the Institute for Clinical Evaluative Sciences.

All work on this project will be completed remotely. The CREMS student will be responsible for data collection, statistical analyses and drafting the results for publication.