Supervisor Name: Mohammed Al-Omran

Hospital/Research Institution: St. Michael’s Hospital / Li Ka Shing Knowledge Institute

Email: AlomranM@smh.ca

Field of Research (2 keywords): endovascular aneurysm repair, systematic review

Department: Division of Vascular Surgery, Department of Surgery

School of Graduate Studies Appointment (IMS, LMP, IHPME etc)?: Yes

If YES, please name: IMS

Project Title:

Systematic review and meta-analysis of the long-term outcomes of endovascular versus open repair of abdominal aortic aneurysm

Brief Project Description (<300 words):

Abdominal aortic aneurysms (AAA) are greater than 3 cm focal dilations of the abdominal aorta. Open surgical repair (OSR) has been the standard approach to AAA repair for almost 60 years, while endovascular aneurysm repair (EVAR) emerged as a minimally invasive alternative in the 1990’s. The first randomized controlled trial investigating EVAR reported improved 30-day mortality compared to OSR. Since then, more studies have demonstrated reduced perioperative mortality and hospital length of stay following EVAR, among other short-term outcomes. As a result, EVAR has become the preferred approach to AAA management over the past two decades. However, EVAR faces unique complications that may require re-intervention, including endoleak and secondary rupture. The timing and consequences of these complications have been the subject of intense recent study. However, the long-term differences in these and other AAA outcomes between EVAR and OSR are still unclear.
Our goal is to summarize the literature regarding the long-term outcomes of EVAR versus OSR for AAA management. We define long-term outcomes as those occurring in a study population with a minimum follow-up period of 10 years. The CREMS student will belong to a team of reviewers conducting a systematic review and meta-analysis in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines. A search strategy for MEDLINE, EMBASE, and the Cochrane Central Register of Controlled Trials will be developed with the support of an experienced cardiovascular librarian. Study screening, full-text review, data abstraction, and quality assessment will be conducted in duplicate, with a third reviewer resolving discrepancies. A meta-analysis will be conducted to determine the pooled all-cause mortality, major adverse cardiovascular event, re-intervention, and secondary rupture rates of EVAR compared to OSR. The results of this systematic review and meta-analysis will improve our understanding of the long-term outcomes of EVAR.