Comprehensive Research Experience for Medical Students
Summer Research Program 2018

Supervisor/Project Information Form
Due February 14 2018 by email to crems.programs@utoronto.ca

PLEASE SUBMIT IN WORD FORMAT ONLY. PDF will not be accepted

Supervisor Name: Tim Van Mieghem

Hospital/Research Institution: Mount Sinai Hospital

Email: tim.vanmieghem@sinahealthsystem.ca

Field of Research (2 keywords): fetal cardiology, labor induction

Department: Obstetrics and Gynaecology, Maternal-Fetal Medicine

School of Graduate Studies Appointment (IMS, LMP, IHPME etc)? No

If YES, please name:

Project Title: Impact of planned early term delivery on the perinatal outcome of fetuses with heart defects.

Brief Project Description (<300 words):

Background: Pregnancies complicated by fetal heart defects are often delivered prior to the onset of natural labor (typically ~38 weeks gestation) to allow for delivery in a tertiary center and to accommodate pediatric staffing. Early term labor induction and pre-labor cesarean section nevertheless carry a higher risk of immature neonatal lungs and transient tachypnoea of the neonate. This may become particularly relevant for a neonate who requires surgery. Additionally, labor induction can increase the risk of fetal distress and cesarean section.

Objectives: To assess the impact of elective early term delivery on the neonatal outcome of fetuses with heart defects.

Methods: We will retrospectively review the delivery outcomes of all women carrying a fetus with an isolated congenital heart defect, who delivered after 38 weeks gestation at Mount Sinai Hospital between 2008-2017 (~400 patients). We will compare outcomes of pregnancies delivered by elective cesarean section or labor induction for ‘timing of delivery’ (cases) with women who were managed expectantly (controls). The primary outcome will be a composite of fetal death, cesarean section, assisted delivery, low Apgar score and acidosis. Secondary outcomes are need for and duration of ventilation, escalation of care from what was planned prenatally, intracranial hemorrhage and infant age at discharge. To detect an increase in the primary outcome from 20 to 35%, we would require 101 cases and 202 controls (95% confidence, 80% power).

Student’s responsibilities: The student will be responsible for data collection and analysis under direct supervision of the mentor. He/she will prepare an abstract for conference presentation and submit a publication to a journal in the field of fetal medicine.

Relevance: This study will inform decision making around timing of delivery for fetuses with heart defects and improve outcomes for infants with cardiac anomalies.