Comprehensive Research Experience for Medical Students
Summer Research Program 2020

Supervisor/Project Information Form
Due February 6, 2020 by email to crems.programs@utoronto.ca

Supervisor Name: John Snelgrove

Project Title: Effects of marginal placental cord insertion on birthweight and fetal growth in IVF pregnancies

Hospital/Research Institution: Mount Sinai Hospital

Email: john.snelgrove@snnaihealth.ca

Field of Research (2 keywords): obstetrics, IVF pregnancy

Department: Obstetrics & Gynaecology: Maternal-Fetal Medicine

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

Brief Project Description (<300 words): 293 excl. references

Objective
Pregnancies achieved with in vitro fertilization (IVF) are at higher risk of placental abnormalities, including placenta previa and accreta.\(^1\) Marginal cord insertion (MCI) is defined as insertion of the umbilical cord <2cm from the placental edge. Mixed evidence supports associations between MCI and fetal growth restriction, low birthweight, and preterm birth.\(^3\)
However, whether MCI is associated with growth abnormalities in the context of IVF pregnancies is unknown. We will assess the effects of MCI on birthweight and fetal growth among IVF pregnancies.

**Methods**

This is a retrospective cohort study with chart review from the Mount Sinai Hospital Special Pregnancy Clinic for Fertility (SPCF). Patient characteristics, ultrasound parameters, and neonatal data are collected as part of an ongoing research project using a RedCap database.

Our primary outcome is low birthweight (<2,500g at birth). Secondary outcomes include fetal growth restriction, neonatal, and maternal complications. The prevalence of MCI is 20% in our population. Using a low birthweight rate of 10%, a sample size of 398 is required to observe a relative-risk of ≥2.0 (2-sided alpha=0.05, power=80%). This is feasible over the timeframe proposed.

**Project team**

The SPCF clinic provides pregnancy care to patients from the Mount Sinai Fertility group. This project fits into a larger research theme run by investigators from maternal-fetal medicine, reproductive endocrinology, and medical genetics. The Infertility, Genetics, and Pregnancy (IGAP) Collaboration has been awarded departmental funding and external peer-reviewed funding from the Canadian Fertility & Andrology Society.

The CREMS student for this project will participate in a systematic review, collaborate with the team’s research assistant on ongoing data collection, learn about cohort data analysis, and co-author at least one final manuscript. Clinical exposure is available to help the student place this research into context. The anticipated timeline is 12 weeks.