Supervisor Name: Dr. Nir Melamed

Project Title: The Predictive Value of Sonographic Placental Study for Placental Complications in Women with Chronic Kidney Disease

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Field of Research (2 keywords): preeclampsia, kidney disease

Department: OBGYN

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

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Brief Project Description (<300 words):

**BACKGROUND**

Preeclampsia (PET) and fetal growth restriction (FGR) are two common pregnancy complications that are attributed to placental dysfunction.\(^1,2\) One of the most important tools for the prediction of these complications in women at high risk for PET and FGR is a sonographic placental study that involves assessment of placental dimensions, placental morphology, umbilical cord, and uterine artery Doppler.\(^3-7\)

Women with chronic kidney disease (CKD) represent one of the most challenging groups of pregnant patients who are at a very high-risk of pregnancy complications, including PET and FGR.\(^8-11\) Therefore, early screening for these complications in women with CKD is of major importance. However, data on the prediction of placental complications in this very high-risk
group are limited. Specifically, there are no data are on the rate of sonographic placental abnormalities and their predictive value for placental complications in this population. We hypothesize that the predictive value of this tool will be especially high in women with CKD given the higher baseline risk (i.e., pre-test probability) PET and FGR in this population. The Pregnancy and Kidney Disease (PreKid) Clinic at a Sunnybrook Health Sciences Centre has the largest population of young pregnant women with CKD in North America, and as such, is uniquely poised to expand knowledge in this most vulnerable patient population.

OBJECTIVE

To determine the rate and predictive value of sonographic placental abnormalities for PET and FGR in women with CKD.

METHODS

Study design: Retrospective cohort study.


Primary outcome: Early onset PET.

Secondary outcome: Overall PET, FGR, preterm birth, placental abruption, and perinatal mortality and morbidity.

Protocols: All pregnant women in Sunnybrook who are at high risk of PET or FGR, including women with CKD, undergo sonographic placental study between 16-22 weeks. The placental study includes assessment of placental dimensions, placental morphology, umbilical cord, and uterine artery Doppler.

Data analysis:

The predictive value of the components of the placental study (in isolation or combined) for the primary and secondary outcomes will be determined using bivariate and multivariable analysis.

REFERENCES