



RACP Foundation Research Awards

PROGRESS REPORT

Project Title	Identifying biomarkers of excessive gestational weight gain	
Name	Dr Kalpana (Priya) Sumithran	
Award Received	2018 RACP Research Establishment Fellowship	
Report Date	24 December 2018	
Chief Investigator / Supervisor	Kalpana (Priya) Sumithran	
Administering Institution	The University of Melbourne	
Funding Period	Start Date:	1 January 2018
	Finish Date:	30 June 2019

PROJECT SUMMARY

This study will examine whether there are differences in circulating proteins and in DNA methylation (a process by which genes may be switched on or off) in genes involved in appetite and growth, between women who gain more weight than is recommended during pregnancy, compared to those who do not. The eventual goal of this is to be able to identify women who are predisposed to excessive gestational weight gain, to whom targeted assistance could be offered, in order to prevent the increased risk of pregnancy complications and longer-term cardiometabolic risks associated with excessive pregnancy-related weight gain and retention.

PROJECT AIMS / OBJECTIVES

The overall aim of this research plan is to identify biomarkers associated with excessive gestational weight gain. A cross-sectional study is being conducted to identify biological differences between women without previous obesity, whose gestational weight gain during the current pregnancy was within vs above the recommended range of 11.5 to 16 kg.

We hypothesise that differences in epigenetic marks in genes relevant to weight regulation and/or in hormones involved in reproduction and energy balance will be identifiable between women who gain excessive weight during pregnancy, and those who do not.

SIGNIFICANCE AND OUTCOMES

Our goal is to find markers to identify women at risk of excessive pregnancy-related weight gain. This is important because excessive gestational weight gain and post-partum weight retention are risk factors not only for adverse outcomes in the next pregnancy, but also for longer-term obesity and metabolic dysfunction in both mother and child. Once established, obesity is a chronic,

treatment-resistant condition, which has a detrimental effect on physical and mental health and health-related quality of life, as well as generating considerable economic costs. Therefore, prospectively identifying women at risk of excessive GWG, may allow targeted delivery of interventions to prevent the development of long-term obesity and associated complications.

This cross-sectional study will provide preliminary data and inform sample size calculations for a planned larger longitudinal study to identify epigenetic marks associated with excessive pregnancy-associated weight gain and retention.

PUBLICATIONS / PRESENTATIONS

Two papers relating to the hormone data and the epigenetic analyses are expected to be written and published in 2019. If publication has not yet occurred, results of the epigenetic analyses will also be submitted as abstracts to national scientific conferences.