Project: Cardiovascular consequences of gestational diabetes; role of amylin

Grant: American Heart Association Transformational Project Award 19TPA34850094

Project Description:
The overall goal of this project was to assess whether gestational diabetes has long term effects (into the postpartum period) on the heart and to elucidate the underlying mechanisms. The project used obese Sprague-Dawley females that express human amylin in the pancreatic β-cells on the insulin II promoter (HIP rats; see Butler et al., *Diabetes* 2004;53:1509) as a model of gestational diabetes (GDM) and their WT littermates as a model of normal pregnancy.

WT and heterozygous HIP females (4-5 months of age) were randomized to study groups (pregnant/non-pregnant control; time of euthanasia: immediately after giving birth and two months postpartum). Blood draws, glucose tolerance tests and non-invasive monitoring of heart function (by echocardiography) were performed on all rats at the beginning of the study (baseline). These non-invasive tests are repeated in late pregnancy, at the time of weaning the pups and two months postpartum. At the end of the study, we collected the heart and either froze it for later biochemical assays or isolated cardiac myocytes.

If cited, please use reference: Verma N, Srodulski S, Velmurugan S, Hoskins A, Pandey VK, Despa F, Despa S. Gestational diabetes triggers postpartum cardiac hypertrophy via activation of calcineurin/NFAT signaling. Sci Rep. 2021;11:20926.