

Webinar Q&A Report:

Sympathetic Regulation in Human Pregnancy

Was the number of miscarriages (if any) included in the number of pregnancies? If so, does that play a role in the effect of multiparity on BP changes?

The number of miscarriages was included in gravidity, but not parity. The number of miscarriages could play a role in the effect of multiparity on blood pressure regulation during subsequent pregnancy. Currently, there is no information available on this topic. Future research is needed to fill the knowledge gap.

Does fitness level have a protective effect on sympathetic activation in women with obesity?

Yes, it should have a protective effect. Previous studies showed that exercise training attenuates sympathetic (re)activity in pregnant women (PMID: 33315812, though not all participants were obese in this study). In our study, we only enrolled sedentary women and excluded women with high physical fitness levels. In fact, the vast majority of women with obesity are sedentary.

In the multiparity heart rate and blood pressure assessments, did you measure pre-pregnancy changes? Like differences of heart rate/blood pressure in pre-pregnancy of the 1st child and then pre-pregnancy of the 2nd child?

Unfortunately, we do not have pre-pregnancy data from our participants in this retrospective study. We enrolled women in early pregnancy and followed them up to 6-10 weeks of postpartum. Our collaborators in Canada enrolled women during late pregnancy.

In the group that you assessed changes in neurotransmitter levels with hypertensive disorders, did you look at rates of postpartum depression as well? Or rates of depression or other mental health disorders prior to pregnancy?

No, we did not. When we enrolled participants, we excluded women with depression or other mental health disorders. This was one of our exclusion criteria. Many antidepressive and anti-anxiety drugs can influence sympathetic outflow through central mechanisms. We did have a handful of participants who developed postpartum depression, but they did not take any medication during postpartum testing.

Have you evaluated heart rate variability in conjunction with MSNA to determine if heart rate variability demonstrates parallel relationships with preeclampsia, as does MSNA?

We have not evaluated HRV in women with preeclampsia. We have collected beat-by-beat heart rate and blood pressure data during laboratory testing in pregnant women with and without preeclampsia and will analyze those data next step. Under most physiological conditions, sympathetic activation to the skeletal muscle vasculature, assessed by MSNA is parallel to sympathetic activation to other vascular bed(s) or organs (e.g. heart, kidney, etc).

Was the sympathetic activation control in pregnancy examined?

We used several methods and protocols to examine sympathetic neural control in pregnancy. These included microneurography (direct measure of the efferent sympathetic neuron discharge) and measurements of plasma catecholamine concentration and renal-adrenal hormones. We are planning to analyze blood pressure variability and heart rate variability next. The protocols we used to examine the sympathetic response included upright tilt, static handgrip exercise (data not presented yesterday but will be reported next week at the CSEP conference), and cold stimuli.

How important do you consider non-invasive blood pressure monitoring for this kind of research?

Very important! Non-invasive beat-to-beat blood pressure monitoring allows us to detect dynamic changes in arterial pressure during physiological stressors, such as orthostasis, exercise, etc.

Contact Details

If you have additional questions for Dr. Qi Fu or [Finapres Medical Systems](#) regarding content from their webinar or if you wish to receive additional information about Finapres' products and services, please contact them by phone or email:

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