

# Race, pre-pregnancy BMI may help predict maternal weight gain

18 March 2018

Race and pre-pregnancy body mass index (BMI) both affect leptin and adiponectin levels, and leptin levels in mid-pregnancy may be an important predictor of weight gain during pregnancy, new research suggests. The results will be presented on in a poster on Sunday, March 18 at ENDO 2018, the 100th annual meeting of the Endocrine Society in Chicago, Ill.

"Gaining too much or too little weight during [pregnancy](#) poses potential health risks. Leptin and adiponectin, hormones released primarily from fat cells, are known to play roles in appetite regulation, insulin resistance, lipid metabolism, blood pressure and the development of metabolic syndrome. During pregnancy, lower levels of adiponectin are associated with higher risk of gestational diabetes and higher [leptin](#) levels are observed in [women](#) who develop pre-eclampsia," said lead study author Adam Jara, D.O., Ph.D., a clinical instructor at Ohio State University in Columbus, Ohio.

Jara and his co-authors at Ohio State investigated the effects of race and pre-pregnancy BMI on serum adiponectin, leptin, the leptin-to-adiponectin ratio (LAR) throughout pregnancy and postpartum, and their effects on [weight gain](#) during pregnancy.

The research team recruited 80 pregnant women—38 African-American and 42 Caucasian women—from the Ohio State University Medical Center Prenatal Clinic. The authors measured adiponectin and leptin levels 3 times during pregnancy—early, middle and late—and again after delivery.

Both race and pre-pregnancy BMI appeared to affect adiponectin and leptin levels during pregnancy and after birth.

After controlling for race and pre-pregnancy BMI, serum levels of adiponectin, leptin and the LAR during pregnancy predicted total maternal weight gain. Leptin levels in mid-pregnancy were the most

predictive of weight gain during pregnancy.

Among African-American women with obesity, the LAR increased significantly from early to mid-pregnancy, stayed high in late pregnancy and decreased after birth. By contrast, among Caucasian women with obesity, the LAR did not change significantly over time.

Overall, adiponectin levels decreased from early to late pregnancy, with an increasing trend after birth. Higher pre-pregnancy BMI was associated with lower levels of adiponectin. African-American women had lower serum [adiponectin](#) at each time point they were tested, compared to Caucasian women with equivalent pre-pregnancy BMIs.

Overall, serum leptin increased throughout pregnancy and declined after birth. Lower [leptin levels](#) were associated with lower pre-pregnancy BMIs.

The National Institute of Nursing Research (NINR), the Eunice Kennedy Shriver National Institute of Child Health and Human Development (NICHD), the National Center for Advancing Translational Sciences (NCATS), and an Ohio University Transition to Research Independence Award supported the study.

Provided by The Endocrine Society

APA citation: Race, pre-pregnancy BMI may help predict maternal weight gain (2018, March 18)  
retrieved 15 October 2019 from <https://medicalxpress.com/news/2018-03-pre-pregnancy-bmi-maternal-weight-gain.html>

*This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.*