

Mom's HDL Cholesterol Tied to Fetal Weight

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CHICAGO — Decreased maternal HDL cholesterol during pregnancy is significantly associated with increased fetal birth weight, according to initial data from the ongoing prospective, longitudinal GROW study.

This association was particularly apparent in overweight and obese women, Dr. Uma Perni and Dr. Vinod K. Misra, both of the University of Michigan, Ann

VITALS

Major Finding: At 32-36 weeks' gestation, a 6.7-g increase in fetal birth weight was associated with a 1-mg/dL decrease in HDL cholesterol.

Data Source: A prospective study of 143 women whose cholesterol and triglyceride levels and whose fetuses' birth weights were measured five times during pregnancy.

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Arbor, wrote in a poster at the annual meeting of the Society for Maternal-Fetal Medicine.

"We believe that having an unhealthy lipid profile may be part of what causes large infants, who then are later at risk for chronic diseases in their lifetime," Dr. Perni said in an interview.

Prenatal events are thought to establish lifelong physiological patterns that may manifest as diseases in later life. In 1995, the British Medical Journal named this idea

the "Barker Hypothesis" based on work by British physician and epidemiologist David Barker who demonstrated that people who had a low birth weight are at greater risk of developing coronary heart disease.

The Gestational Regulators of Weight (GROW) study is the first to document the relationship between variations in birth weight and maternal serum lipids measured at multiple time points during pregnancy, according to the authors.

The researchers measured serum levels of triglycerides, HDL cholesterol (HDL-C), LDL cholesterol (LDL-C), and total cholesterol in 143 women at five time points during pregnancy: 6-10 weeks' gestation, 10-14 weeks, 16-20 weeks, 22-26 weeks, and 32-36 weeks. Linear regression analyses were conducted, with fetal birth weight adjusted for gestational age determined by a first-trimester dating scan.

In all, 85 women had a low/normal weight (body mass index 18-26 kg/m²) and 58 women were overweight/obese (BMI greater than 26 kg/m²); 55% of all women were aged 30 years or less and 62% were multiparous.

A significant inverse relationship was observed between adjusted birth weight and HDL-C at all five time points, reported Dr. Perni, an ob.gyn. at the University of Michigan, and Dr. Misra of the department of pediatrics and communicable diseases at C.S. Mott Children's Hospital, Ann Arbor. For example, at 32-36 weeks' gestation, a 6.7-g increase in birth weight was associated with a 1-



'Having an unhealthy lipid profile may be part of what causes large infants.'

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mg/dL decrease in HDL-C. The increase in birth weight associated with a 1-mg/dL decrease in HDL-C was 5.7 g at 6-10 weeks' gestation, 5.4 g at 10-14 weeks, 5.0 g at 16-20 weeks, and 6.2 g at 22-26 weeks. Birth weight was also significantly associated with triglycerides at 10-14 weeks' gestation, 22-26 weeks, and 32-36 weeks. No significant association was observed between birth weight and total cholesterol or LDL-C at any time point.

After analyses were stratified by maternal prepregnancy BMI, the association between HDL-C and birth weight was significant for low- and normal-weight women only at 32-36 weeks' gestation. At that time point, a 1-mg/dL decrease in HDL-C was associated with an increased birth weight of 5.4 g. The association, however, remained significant for overweight and obese women at all time points, the authors reported. At 32-36 weeks' gestation, a 1-mg/dL decrease in HDL-C was associated with an increased birth weight of 9.6 g.

"The findings suggest that the metabolic pathways influencing infant health may have very different effects in obese women," Dr. Misra said in an interview.

Physicians face a clinical dilemma when dealing with hyperlipidemia in pregnant women who are overweight and obese, as statin use is contraindicated in pregnancy.

"One thing that we could look into is preconceptionally optimizing lipid profiles," Dr. Perni said. "During pregnancy, we need to investigate further the safety of various lipid-lowering medications." ■

Dark Chocolate Is Linked to Less Maternal Anemia

CHICAGO — A daily dosage of 30 g of dark chocolate during pregnancy was associated with lower blood pressures and a reduced risk of anemia, Italian researchers reported.

Oral glucose tolerance testing revealed no alterations in the 40 women fed dark chocolate, while gestational diabetes was detected in 2 of the 40 controls, Dr. Gian Carlo Di Renzo, chair of obstetrics and gynecology at the University of Perugia (Italy), and his colleagues reported in a poster at the annual meeting of the Society for Maternal-Fetal Medicine.

"It is an appealing idea that a food commonly consumed for pure pleasure could also bring tangible benefits for health," they wrote.

Women were fed dark chocolate beginning at their first prenatal visit at 9-12 weeks. None of the women given dark chocolate developed anemia in pregnancy, but 65% of controls needed iron supplementation starting at 24 weeks' gestation.

The 30 g of chocolate, 70% cocoa content, contained 10 mg of iron, 6 mcg of folic acid, 0.3 mg of vitamin E, 194 mg of theobromine and 29.4 mg of flavonols.

In a prospective cohort of 2,291 preg-

nant women, Yale University investigators reported that chocolate consumption was associated with a lower risk of preeclampsia, a pregnancy complication that shares many characteristics of cardiovascular disease including endothelial dysfunction (Epidemiology. 2008;19:459-64).

VITALS

Major Finding: About 30 g of dark chocolate per day during pregnancy was associated with systolic and diastolic blood pressure levels that were lower by 8.32 mm Hg and 3.76 mm Hg, respectively, than those of women in a control group.

Data Source: Longitudinal study in 80 women.

Disclosures: None was reported.

In the current analysis, blood pressure values were lower at all time points during gestation among women eating chocolate. At the final checkup before they gave birth, controls had systolic and diastolic blood pressure levels that were higher by 8.32 mm Hg and 3.76 mm Hg.

The 160-calorie dose of dark chocolate did not affect weight gain. Cesarean section rates were also equivalent at 32% in both groups.

"Dark chocolate is a well-accepted and valuable supplemental food in pregnancy," they wrote. ■

Magnesium Adds Value Beyond Seizure Prevention

CHICAGO — Central arterial compliance is improved following magnesium infusion in women with preeclampsia, according to a prospective, observational study in 70 patients.

"Magnesium may improve perfusion to end organs by decreasing arterial stiffness, suggesting a benefit beyond seizure prophylaxis," Dr. Dennie Rogers said at the annual meeting of the Society for Maternal-Fetal Medicine.

In a normal pregnancy, arterial compliance increases by 30% in the first trimester and remains elevated until returning to normal levels 6 weeks post partum. Enhanced arterial compliance is part of the normal adaptation to increased intravascular volume during pregnancy. In preeclampsia, this adaptive mechanism is blunted, explained Dr. Rogers, an ob.gyn. at the University of Illinois at Chicago.

The investigators used applanation tonometry to capture radial pulse waveforms at four time points in 70 women with preeclampsia undergoing magnesium therapy for seizure prophylaxis. From these waveforms they derived the aortic waveform and calculated the augmentation pressure (AP) index and augmentation index corrected at 75 beats per minute (Alx@75). The indices are surrogate measures of arterial compliance. The four time points measured were before magnesium administration, 1 hour after a magnesium bolus, 4 hours after mainte-

nance magnesium infusion, and 24 hours after magnesium infusion completion.

The AP and Alx@75 values were significantly lower at all three time points following magnesium administration, compared with pre-magnesium administration, indicating an improvement in radial stiffness, she said. The effect was most pronounced 4 hours after the infusion began, but persisted for 24 hours following magnesium completion. Notably, brachial blood pressures were not clinically or statistically different at any time line, suggesting that arterial compliance cannot be reliably inferred from traditional brachial pressure.

"Our research suggests that central arterial pressure waveforms may better characterize the pulsatile component of the vascular system," she said. "This may lead to more effective dosing of medications and improved treatment of hypertensive disorders in pregnancy."

During a discussion of the study, Dr. Rogers noted that use of radial artery pulse waveforms has been validated in nonpregnant populations but not in pregnancy. Session moderator Dr. Norman Gant of the University of Texas at Dallas, said that another team of investigators observed the same findings using magnesium in pregnant women, but these results were not written down. ■

Disclosures: None was reported.