Maternal HDL Linked to Fetal Birth Weight

VITALS

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

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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BY PATRICE WENDLING

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 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, LDL cholesterol 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/m^2) and 58 women were overweight/obese (BMI greater than 26 kg/m^2); 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 cholesterol 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-mg/dL decrease in HDL cholesterol. The increase in birth weight associated with a 1-mg/dL decrease in HDL cholesterol 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 linked 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 cholesterol at any time point.

After the analyses were stratified by maternal prepregnancy BMI, the association between HDL cholesterol 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 cholesterol 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 cholesterol was associated with an increased birth weight of 9.6 g. ■

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