

Metabolic status before pregnancy predicts subsequent gestational diabetes

October 12 2010

Cardio-metabolic risk factors such as high blood sugar and insulin, and low high density lipoprotein cholesterol that are present before pregnancy, predict whether a woman will develop diabetes during a future pregnancy, according to a Kaiser Permanente study in the current issue of the *American Journal of Epidemiology*.

The study suggests that metabolic screening of all women before pregnancy, particularly overweight women, could help identify those more likely to develop gestational diabetes mellitus, known as GDM, in a subsequent pregnancy and help them take preventive steps prior to conception.

Women who develop GDM during pregnancy are more likely to develop [Type 2 diabetes](#) after pregnancy, previous research has shown. GDM is defined as glucose intolerance that typically occurs during the second or third trimester and causes complications in as much as 7 percent of pregnancies in the United States. It can lead to early delivery and Cesarean sections and increases the baby's risk of developing diabetes, obesity and [metabolic disease](#) later in life.

The study is among the first to measure cardio-metabolic risk factors before pregnancy in women 18-30 years of age without diabetes who later became pregnant and reported whether they had developed GDM. The research provides evidence to support pre-conception care for healthy pregnancies as noted in a 2006 report by the U.S. [Centers for Disease Control and Prevention](#). That report suggested that risk factors

for adverse outcomes among women and infants can be identified prior to conception and are characterized by the need to start, and sometimes finish, interventions before conception occurs.

"Our study suggests that women may benefit from a focus on care before conception that would encourage screening for metabolic abnormalities before pregnancy, rather than only during pregnancy. Because weight loss is not advised, and the medication and behavioral treatment options are more limited during pregnancy, the time to prevent gestational diabetes is before pregnancy begins," said study lead investigator Erica P. Gunderson, PhD, an epidemiologist and research scientist at the Kaiser Permanente Division of Research in Oakland, Calif. "Screening and treatment of metabolic risk factors before pregnancy to prevent GDM may help reduce its lasting adverse health effects on children, by possibly improving the uterine environment," she added.

Researchers studied 1,164 women without diabetes before pregnancy who delivered 1,809 live births during the course of five consecutive exams from 1985-2006 as part of a Coronary Artery Risk Development in Young Adults study. Participant characteristics - including lifestyle, socio-demographic, medical conditions, medication use, family history of diabetes, pregnancies and births and GDM status, as well as clinical assessments, body measurements and blood specimens - were obtained at baseline. Follow-up exams used standardized research methodologies, including self- and interviewer-administered questionnaires.

Impaired fasting glucose, elevated fasting insulin and low HDL-cholesterol before pregnancy were associated with higher risk of GDM. Of the 1,809 live births studied, 154 (8.5 percent) involved a GDM pregnancy.

Among overweight women, 26.7 percent with one or more cardio-metabolic risk factors before pregnancy developed [gestational diabetes](#)

versus 7.4 percent who did not have cardio-metabolic risk factors.

Although obesity and belly fat are antecedents to insulin resistance, pre-pregnancy obesity was not independently predictive of GDM after taking into account cardio-metabolic risk factors. Researchers also found no association between pre-pregnancy blood pressure or hypertension and risk of GDM, possibly due to the low prevalence of these conditions in healthy women of reproductive age.

Provided by GolinHarris International

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