Medical Xpress

Weight gain between first and second pregnancies increases woman's gestational diabetes risk

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Compared with women whose weight remained stable, body mass index gains between the first and second pregnancy were associated with an increased risk of gestational diabetes mellitus in the second pregnancy. But losing weight between the first and second pregnancies appeared to reduce GDM risk in a second pregnancy, particularly for women who were overweight or obese to begin with, according to a Kaiser Permanente Division of Research study appearing online in the journal *Obstetrics and Gynecology.*

GDM is associated with an increased risk of adverse perinatal outcomes as well as subsequent diabetes in women and their offspring, researchers say.

The study examined a diverse cohort of 22,351 women from Kaiser Permanente in Northern California over a 10-year period. Women who gained 2.0-2.9 BMI units (approximately 12 to 17 pounds) between the first and second pregnancy were more than two times more likely to develop GDM in the second pregnancy compared with those whose weight remained stable (plus or minus 6 pounds between pregnancies). Women who gained 3.0 or more BMI units (approximately 18 or more pounds) between the first and second pregnancy were more than three times more likely to develop GDM during the second pregnancy compared with those whose weight remained stable

Conversely, women who lost more than 6 pounds between the first and second pregnancy reduced their risk of developing GDM in the second pregnancy by approximately 50 percent compared with women whose weight remained stable. The association between losing weight and reduced GDM risk was strongest in women who were overweight or obese in their first pregnancy, explained the researchers.

Previous research has shown that excessive postpartum weight retention and lifestyle changes have been associated with a woman being overweight years after pregnancy, which increases the risk of developing non-insulin-dependent diabetes mellitus, said study lead investigator Samantha Ehrlich, MPH, a project manager at the Kaiser Permanente Division of Research in Oakland, Calif. Weight gain before pregnancy and gestational weight gain similarly have been shown to increase the risk of GDM. Additional research has shown that a pregnancy complicated by GDM is associated with a high risk of recurrent GDM in a subsequent pregnancy, explained Ehrlich, who is a PhD candidate in Epidemiology at the University of California at Berkeley.

This study is the first to examine whether weight loss before a second pregnancy reduces the risk of recurrent GDM.

Women who lose BMI between pregnancies appear to have a decreased risk of GDM in their second pregnancy, but there was significant variation by maternal overweight or obese status in the first pregnancy. Weight loss was associated with lower risk of GDM primarily among women who were overweight or obese in their first pregnancy, Ehrlich said.

She explained that being overweight or obese prior to pregnancy is a well-established risk factor for GDM. Women of normal weight who go on to develop GDM are likely to be more genetically susceptible to the disease. Thus, lifestyle changes resulting in weight loss may not be as

effective in reducing GDM risk among normal weight women, she added.

"The results also suggest that the effects of body mass gains may be greater among women of normal weight in their first pregnancy, whereas the effects of losses in body mass appear greater among overweight or obese women," Ehrlich said. "Taken together, the results support the avoidance of gestational weight retention and postpartum weight gain to decrease the risk of GDM in a second pregnancy, as well as the promotion of postpartum weight loss in overweight or obese women, particularly those with a history of GDM."

In the study, BMI units were calculated for the average height of the study population, which was 5 feet 4 inches, and one BMI unit corresponded to approximately 6 pounds.

This study is part of ongoing research at Kaiser Permanente to understand, prevent and treat gestational diabetes. Recent Kaiser Permanente research includes:

- A study in the American Journal of Epidemiology found that 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. http://xnet.kp.org/newscenter/pressreleases/nat/2010/101210gestationaldiabetes.html
- A study in the American Journal of Obstetrics and Gynecology found there is an increased risk of recurring gestational diabetes in pregnant women who developed gestational diabetes during their first and second pregnancies. http://xnet.kp.org/newscenter/pressreleases/nat/2010/071210gestationaldiabetes.html

- A study in Diabetes Care of 10,000 mother-child pairs showed that treating gestational diabetes during pregnancy can break the link between gestational diabetes and childhood obesity. That study showed, for the first time, that by treating women with gestational diabetes, the child's risk of becoming obese years later is significantly reduced. http://xnet.kp.org/newscenter/pressreleases/nat/2007/082707gestationaldiabetes.html
- A study in Obstetrics & Gynecology of 1,145 pregnant women found that women who gain excessive weight during pregnancy, especially in the first trimester, may increase their risk of developing diabetes later in their pregnancy. http://xnet.kp.org/newscenter/pressreleases/nat/2010/022210pregnancyweightgain.html
- A study in Ethnicity & Disease of 16,000 women in Hawaii found that more than 10 percent of women of Chinese and Korean heritage may be at risk for developing gestational diabetes. http://xnet.kp.org/newscenter/pressreleases/nat/2009/121109diabetespregnancy.html

Provided by Kaiser Permanente

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