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Gestational diabetes may raise risk for heart disease in midlife

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Pregnant women may face an increased risk of early heart disease when they develop gestational diabetes, according to research in the *Journal of the American Heart Association*.

Gestational diabetes, which develops only during pregnancy and usually disappears after the pregnancy, increases the risk that the mother will develop diabetes later. The condition is managed with meal planning, activity and sometimes insulin or other medications.

In the 20-year study, researchers found that a history of gestational diabetes may be a risk factor for early atherosclerosis in women during midlife before the onset of diabetes and metabolic diseases.

"Our research shows that just having a history of gestational diabetes elevates a woman's risk of developing early, sub-clinical atherosclerosis before she develops type 2 diabetes or the metabolic syndrome," said Erica P. Gunderson, Ph.D., M.S., M.P.H., study lead author and senior research scientist in the Division of Research at Kaiser Permanente Northern California in Oakland, Calif. "Pregnancy has been under-recognized as an important time period that can signal a woman's greater risk for future heart disease. This signal is revealed by gestational diabetes, a condition of elevated blood sugar during pregnancy."

At the start of the study, researchers measured risk factors for heart disease before pregnancy among 898 women, 18 to 30 years old, who later had one or more births. The women were periodically tested for

diabetes and metabolic conditions before and after their pregnancies throughout the 20-year period. Carotid artery wall thickness was measured on average 12 years after pregnancy when women were 38 to 50 years old. The study controlled for age, race, number of births and pre-pregnancy body mass index, and fasting blood glucose, insulin, lipids, and blood pressure.

Participants were divided into women who developed gestational diabetes and those who didn't. Overall, 119 women (13 percent) reported they had developed gestational diabetes (7.6 per 100 deliveries).

Carotid artery media thickness is an early measure of sub-clinical atherosclerosis and predicts heart attack and stroke in women. Researchers used ultrasound studies to image the carotid artery, with four measurements from the near and far wall thickness.

Among the women who did not go on to develop diabetes or the metabolic syndrome during the 20- year follow up, they found a 0.023 mm larger average carotid artery intima-media thickness in those who had gestational diabetes compared to those who didn't, and the difference was not attributed to obesity or elevated glucose before pregnancy.

"This finding indicates that a history of gestational diabetes may influence development of early atherosclerosis before the onset of diabetes and metabolic diseases that previously have been linked to heart disease," Gunderson said. "Gestational diabetes may be an early risk factor for heart disease in women."

At the study's close, 13 women experienced cardiovascular events, one of them in the gestational diabetes group.

Participants were part of the CARDIA study (Coronary Artery Risk

Development in Young Adults), a longitudinal analysis of women without previous heart disease or diabetes before pregnancies. Women participating in the CARDIA study came from four urban areas: Birmingham, Ala., Chicago, Ill., Minneapolis, Minn., and Oakland, Calif.

It's important to recognize reproductive characteristics that may contribute to disease risk in women and may inform early prevention efforts, Gunderson said.

"It's a shift in thinking about how to identify a subgroup at risk for atherosclerosis early," she said. "The concept that reproductive complications unmask future disease risk is a more recent focus."

Gunderson plans to continue following this line of research and investigating other risk factors involving pregnant women and disease. At present, there are no uniform national recommendations for screening for heart disease risk factors in pregnancy to determine risk of later heart disease.

Provided by American Heart Association

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