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Prenatal depression may be linked to cardiovascular disease after childbirth

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Individuals who were diagnosed with depression during pregnancy were more likely to be diagnosed with cardiovascular disease within two years after giving birth than individuals without depression, according to new

research published today in the *Journal of the American Heart Association*.

The negative effects of depression on cardiovascular health in the general population are well established: depressed men and women are more likely to develop heart disease later in life, and previous research has found that about 20% of individuals experience depression during pregnancy. However, little research has been done on prenatal depression as a specific risk factor for cardiovascular disease.

"We need to use pregnancy as a window to future health," said lead study author Christina M. Ackerman-Banks, M.D., an assistant professor of obstetrics and gynecology-maternal fetal medicine at Baylor College of Medicine and Texas Children's Hospital in Houston. "Complications during pregnancy, including prenatal depression, impact long-term cardiovascular health. The postpartum period provides an opportunity to counsel and screen people for cardiovascular disease in order to prevent these outcomes."

This study is the first population-based study to primarily investigate the relationship between prenatal depression and postpartum cardiovascular disease diagnosis within the first two years postpartum. The research team analyzed data from the Maine Health Data Organization's All Payer Claims Database for over 100,000 individuals who gave birth in Maine between 2007 and 2019. The researchers aimed to estimate the cumulative risk of new cardiovascular disease diagnoses within two years after delivery.

After adjusting for potential confounding factors such as smoking, age at time of delivery and pre-pregnancy diabetes, pre-pregnancy depression, pre-pregnancy hypertension and preeclampsia, the researchers estimated the risk of developing six major cardiovascular conditions—heart failure, ischemic heart disease, arrhythmia/cardiac arrest,

cardiomyopathy, stroke and high blood pressure—within two years of delivery.

The analysis found that the estimated cumulative cardiovascular disease risk for heart failure, ischemic heart disease, cardiomyopathy, arrhythmia/cardiac arrest or newly diagnosed high blood pressure within two years of delivery was significantly higher for people with depression compared to the people without depression. People with prenatal depression had:

- an 83% higher risk of ischemic heart disease (issues caused by narrowed heart arteries supplying blood to the heart muscle);
- a 60% higher risk of arrhythmia/cardiac arrest;
- a 61% higher risk of cardiomyopathy; and
- a 32% higher risk of new high blood pressure diagnosis.

Additionally, an analysis excluding those with high blood pressure during pregnancy (preeclampsia or gestational hypertension) found that individuals with prenatal depression had:

- an 85% higher risk for arrhythmia/cardiac arrest;
- an 84% higher risk of ischemic heart disease;
- a 42% higher risk of stroke;
- a 53% higher risk of cardiomyopathy; and
- a 43% higher risk of a new high blood pressure diagnosis.

Ackerman-Banks said, "Even after excluding those with hypertensive disorders of pregnancy, those with depression during pregnancy still had a significantly higher risk of ischemic heart disease, arrythmia, stroke, cardiomyopathy and new chronic hypertension postpartum."

Cardiovascular disease is the leading cause of pregnancy-related death in high-income countries including the U.S., according to the American

Heart Association's 2023 Statistical Update. Additional pregnancy-related factors contributing to the development of cardiovascular disease may include chronic inflammation and increased stress-related hormones, the study authors noted.

"I recommend that anyone diagnosed with prenatal depression be aware of the implications on their long-term cardiovascular health, take steps to screen for other risk factors and consult with their primary care doctor in order to implement prevention strategies for cardiovascular disease," Ackerman-Banks said. "They should also be screened for Type 2 diabetes and high cholesterol, and implement an exercise regimen, healthy diet and quit smoking."

The authors acknowledge that while the study population was large, the results were based on medical claims data, meaning that diagnoses of conditions could not be confirmed. Additionally, information on race, ethnicity and physical activity levels were not available. Future studies testing interventions integrated into prenatal and postpartum care may help overcome these limitations and inform current recommendations, according to the study authors.

More information: Christina M. Ackerman-Banks et al, Association of Prenatal Depression With New Cardiovascular Disease Within 24Months Postpartum, *Journal of the American Heart Association* (2023). DOI: 10.1161/JAHA.122.028133

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