

Placental syndromes increase women's short-term risk for cardiovascular diseases

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Dr. Cain led the population-based retrospective study on maternal placental syndromes and short-term cardiovascular outcomes.

The short-term risk of developing cardiovascular disease following a first pregnancy is higher for women experiencing placental syndromes and a preterm birth or an infant born smaller than the usual size, a University of South Florida study reports. The USF researchers also found a five-fold increase in health care costs for women with placental syndromes who developed cardiovascular disease as soon as three to five years following delivery, compared to those who did not.

Their results were recently published online, in advance of print, in the *American Journal of Obstetrics and Gynecology*. The study, done in collaboration with Baylor College of Medicine, was supported by the

Agency for Healthcare Research and Quality.

"Pregnancy does not occur in isolation; it's part of a woman's overall health history," said lead author Mary Ashley Cain, MD, assistant professor in the Department of Obstetrics and Gynecology, USF Health Morsani College of Medicine. "Our study further supports the need for improved preconception care to identify and manage maternal high blood pressure, unhealthy weight and other [cardiovascular risk factors](#) before the next pregnancy."

"Early lifestyle modifications, treatment with appropriate medications and routine follow-up may improve the cardiovascular profile of these patients and help prevent or reduce future poor pregnancy outcomes."

Other epidemiological studies have shown associations between cardiovascular disease and placental syndromes, including preeclampsia, a condition characterized by [high blood pressure](#) in pregnancy; placental infarction, an interruption in blood flow between the placenta and baby; and placental abruption, separation of the placenta from the uterine wall before delivery. However, most previous studies followed women with placental syndrome for long-term risk of adverse cardiovascular outcomes—up to 15 years after giving birth.

The USF study focused on the short-term risk of developing cardiovascular disease—within 5 years of a first pregnancy. Disease arising in this time period would be more likely to affect any future pregnancies. Also, for the first time, researchers evaluated health care utilization and hospital costs to quantify the burden of placental syndrome-associated cardiovascular disease.

The population-based retrospective study followed 302,686 Florida women and girls, ages 15 to 49, with no history of cardiovascular disease before their first documented delivery. Maternal placental syndromes

were defined as gestational hypertension, preeclampsia, eclampsia, and [placental abruption](#) or infarction. Cardiovascular disease was defined as a diagnosis of coronary heart disease, cerebrovascular disease, peripheral artery disease or congestive heart failure, or a cardiac or peripheral artery revascularization at least 90 days after the delivery discharge date.

Among the USF researchers' findings:

- After adjusting for sociodemographic, clinical and behavioral factors, women with any placental syndrome had a 19-percent higher risk of developing cardiovascular disease within five years of their first pregnancy than women without PS.
- When placental syndrome was combined with poor fetal outcomes – either preterm birth or small for gestational age, or both – the risk of cardiovascular disease upon short-term follow-up increased to 45 percent.
- Women with placental syndromes who subsequently developed cardiovascular disease incurred a five-fold increase in health care-related costs during short-term follow-up, compared to those who did not develop cardiovascular disease.
- The researchers concluded that preventing placental syndromes in the 36,713 women with one or more placental syndromes in their study population would have "saved more than \$63 million in direct costs of inpatient and emergency care during the average 5-year follow-up period."

Just how hypertensive disorders of pregnancy and related placental abnormalities may increase premature [cardiovascular disease risk](#) in women with no apparent medical history of heart disease requires more research.

"It's a chicken-or-the-egg situation," Dr. Cain says. "We don't know whether existing (asymptomatic) baseline cardiovascular disease is

unmasked by placental syndromes in some pregnant woman, or if something about the placental syndromes triggers damage to mothers' blood vessels that can lead to cardiovascular disease."

Dr. Cain, who specializes in maternal-fetal medicine, is working with Aarti Patel, MD, assistant professor of cardiology at USF Health, to create a postpartum follow-up clinic for women with increased risk of [cardiovascular disease](#). Patients will be seen at both the USF Health South Tampa Center for Advanced Healthcare and Tampa General Hospital's Genesis Center and include those who have experienced placental syndromes and/or adverse pregnancy outcomes.

More information: Mary Ashley Cain et al. Pregnancy as a window to future health: maternal placental syndromes and short-term cardiovascular outcomes, *American Journal of Obstetrics and Gynecology* (2016). [DOI: 10.1016/j.ajog.2016.05.047](https://doi.org/10.1016/j.ajog.2016.05.047)

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