

Early diagnosis of pregnancy-associated heart disease linked to better outcomes

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Women who are diagnosed with peripartum cardiomyopathy (PPCM) during late pregnancy or within a month following delivery are more likely to experience restored cardiac function and improved outcomes compared to those who are diagnosed later in the postpartum period, according to a new study from Penn Medicine. The findings underscore the need for increased awareness and monitoring of heart failure symptoms, particularly among black women, who, on average, are diagnosed significantly later than white patients, researchers found.

Authors say the findings, which will be published in *Hypertension* and presented at the American Heart Association's 2019 Scientific Sessions, may explain the striking disparities in outcomes between white and black patients with PPCM. In a previous study, published in *JAMA Cardiology*, the team found black women were only about half as likely to return to normal levels of [cardiac function](#) and took twice as long to do so.

"Our findings demonstrate that important racial disparities exist not only in the outcomes of

patients with PPCM, but in the timing of diagnosis and baseline level of cardiac function," said the study's lead author Jennifer Lewey, MD, MPH, director of the Women's Cardiovascular Health Program and co-director of the Pregnancy and Heart Disease Program at Penn Medicine. "Cardiomyopathy is the leading cause of maternal mortality in the [postpartum period](#), and while we recommend increased monitoring for [peripartum cardiomyopathy](#) in all patients, it's particularly important in [black women](#). Earlier diagnoses of PPCM may help to prevent the poor outcomes and expedite their recovery to normal cardiac function."

PPCM, which affects at least one in 2,000 pregnancies in the United States, is a rare, potentially life-threatening form of heart failure in which the heart muscle becomes weak—often during the final month of pregnancy or in the first few months after delivery. Although the majority of patients, about 60 to 70 percent, experience a recovery to normal cardiac function, about 13 percent of patients experience severe, persistent cardiac dysfunction and can require a heart transplant or left ventricular assist device (LVAD), a mechanical pump that helps the left ventricle pump blood to the rest of the body.

Hypertensive disorders of pregnancy (HDP), such as gestational hypertension (high blood pressure noted in the latter part of pregnancy) and preeclampsia (a dangerous complication characterized by high blood pressure), are the strongest risk factors for PPCM. Previous studies have noted that patients with HDP and, ultimately, PPCM may fare better than those who do not develop HDP prior to PPCM. The studies suggest that if HDP contributes to the development of PPCM, the resolution of postpartum [high blood pressure](#) and restoration of normal blood vessel formation could accelerate one's recovery to normal cardiac function. However, several studies have demonstrated that no such relationship exists.

To further examine how HDP and the timing of diagnosis impact patient outcomes, the Penn team conducted a retrospective study of 220 patients diagnosed with PPCM. Although women with HDP are diagnosed with PPCM earlier in the postpartum period, researchers found that women with HDP and PPCM experienced similar rates of left ventricular ejection fraction (LVEF) as those without HDP (68 percent and 63 percent, respectively). However, they found that patients who were diagnosed with PPCM more than a month after the delivery had significantly lower rates of cardiac recovery than those who were diagnosed earlier (54 percent vs. 70 percent). Patients who received an early diagnosis generally had higher baselines of cardiac function, likely contributing to the improved outcomes, authors suggest.

Additionally, researchers found that the majority of [white patients](#) with PPCM and HDP were diagnosed within a week of delivery. However, [black patients](#) with PPCM and HDP were most likely to be diagnosed between one and five months postpartum, with a small percentage diagnosed even beyond the five-month mark.

"While we are still investigating the factors—such as genetics and socioeconomic status—that lead to later diagnosis in this population, we hope our findings help to increase awareness of the need for proactive monitoring," said the study's senior author Zoltan Arany, MD, Ph.D., a professor of Cardiovascular Medicine at Penn.

Lewey will present her research at 1:30 pm ET on Saturday, November 16, in Zone 2 of the Science and Technology Hall at the Pennsylvania Convention Center in Philadelphia.

Provided by Perelman School of Medicine at the University of Pennsylvania

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