

Hypertensive disorders in pregnancy correlated with a higher risk of coronary artery disease and stroke

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Genomic analysis by researchers from the UK and the Netherlands has found links between hypertensive disorders in pregnancy (HDPs) and a higher risk of coronary artery disease and stroke.

The study, "Association of Hypertensive Disorders of Pregnancy With Future Cardiovascular Disease," is published in *JAMA Network Open*.

The term "hypertensive disorders" used by the researchers encompasses three diagnoses: gestational hypertension, preeclampsia/eclampsia, and either of these conditions combined with chronic hypertension.

The researchers started with a collection of over 260,000 genomes from patients with known cases of coronary artery disease, ischemic stroke, heart failure, or atrial fibrillation. They then compared select single nucleotide variants against 31,455 patients with either HDPs, gestational hypertension, or preeclampsia/eclampsia and a control group of 136,325.

Single nucleotide variants (SNVs or SNPs) are common small variations within the genome. For example, a C nucleotide might be situated in one location on your genome, but might appear as a G, T or A in another individual. Often these are located in non-coding regions of our DNA and are not always associated with pathology.

Researchers used Mendelian randomization, a technique that uses the genetic variants related to a known disease risk factor and compares

them to [environmental exposures](#), to look for genomic influences on the outcomes of patients with HDPs.

No genomic variant correlation among HDPs, gestational hypertension, and preeclampsia/eclampsia was found with heart failure or atrial fibrillation. Genetically predicted HDPs, however, were associated with a higher risk of both coronary artery disease and stroke. Gestational hypertension and preeclampsia/eclampsia were also associated with coronary artery disease, but not stroke, heart failure, or atrial fibrillation.

The researchers conclude that the findings support the classification of HDPs as [risk factors](#) for [cardiovascular disease](#) by providing [genetic evidence](#) for an association between HDPs and higher risk of [coronary artery disease](#) and stroke, only partially mediated by systolic blood pressure and type 2 diabetes. They recommend that future studies focus on evaluating the mechanism underlying the associations.

Bioinformatic genomic data comparisons are a powerful tool for discovering correlations between the occasionally idiosyncratic code that makes up human beings. While many diseases are associated with genetic variants, it does not always mean causation, but it does give researchers better targets for further investigation.

More information: Bilal Rayes et al, Association of Hypertensive Disorders of Pregnancy With Future Cardiovascular Disease, *JAMA Network Open* (2023). [DOI: 10.1001/jamanetworkopen.2023.0034](https://doi.org/10.1001/jamanetworkopen.2023.0034)

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