

Preeclampsia in mothers linked with four-fold higher risk of heart attack in decade after childbirth

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Women with preeclampsia develop a higher likelihood of heart attack and stroke than their peers within just seven years of delivery, with risks remaining elevated more than 20 years later. The study of more than one

million pregnant women is published today in the *European Journal of Preventive Cardiology*.

"The high risk of [cardiovascular disease](#) after preeclampsia manifests at young ages and early after delivery," said study author Dr. Sara Hallum of the University of Copenhagen, Denmark. "This indicates that interventions to prevent heart attacks and strokes in affected women cannot wait until [middle age](#) when they become eligible for conventional cardiovascular screening programs."

Preeclampsia affects up to 8% of pregnancies worldwide. Medical signs are high blood pressure and protein in the urine, which develop after 20 weeks of [pregnancy](#) or soon after delivery. Symptoms include severe headache, stomach pain and nausea. "Women may mistake these for 'normal' pregnancy symptoms and thus not seek [medical help](#) until the condition becomes severe," said Dr. Hallum. "Most cases are mild, but preeclampsia may lead to serious complications for the mother and baby if not treated in time."

It is well established that preeclampsia predisposes women to an elevated likelihood of cardiovascular disease later in life. This was the first study to examine how soon after pregnancy these heart attacks and strokes manifest, and the magnitude of risk in different age groups.

National registers were used to identify all [pregnant women](#) in Denmark between 1978 and 2017. Women were grouped into those with one or more pregnancies complicated by preeclampsia and those with no preeclampsia. Participants were free of cardiovascular disease before pregnancy and were followed for a maximum of 39 years for [heart attack](#) and stroke. Dr. Hallum said, "This allowed us to evaluate exactly when cardiovascular disease occurs in women with and without preeclampsia, and to estimate risk in different age groups and at various durations of follow-up."

The study included 1,157,666 women. Up to 2% of those with preeclampsia in their first pregnancy had a heart attack or stroke within two decades of delivery, compared with up to 1.2% of unaffected women. Differences in risk became apparent seven years after delivery. "A 2% incidence of acute myocardial infarction and ischemic stroke should not be accepted as the cost of a pregnancy complicated by preeclampsia, particularly considering the young age of these women when they fall ill (below 50 years of age)," states the paper.

Overall, women with preeclampsia were four times more likely to have a heart attack and three times more likely to have a stroke within 10 years of delivery than those without preeclampsia. The risk of heart attack or stroke was still twice as high in the preeclampsia group more than 20 years after giving birth, compared to unaffected women.

When the researchers examined the risk of cardiovascular disease according to age, they found that women aged 30 to 39 years with a history of preeclampsia had five- and three-fold higher rates of heart attack and [stroke](#), respectively, than those of similar age with no history of preeclampsia. The raised likelihood of cardiovascular disease in those with a history of preeclampsia persisted throughout adulthood, with women over 50 years of age still at doubled risk compared to their peers with no history of the pregnancy complication.

Dr. Hallum said, "Women are often in contact with the healthcare system during and immediately after pregnancy, providing a window of opportunity to identify those at increased risk of cardiovascular disease. The number of women with previous preeclampsia is large, and routine follow-up could last years or even decades. Our study suggests that the women most likely to benefit from screening are those who had preeclampsia after age 35 and those who had it more than once. Prevention should start within a decade of delivery, for example, by treating [high blood pressure](#) and informing women about risk factors for

heart disease, such as smoking and inactivity."

More information: Sara Hallum et al, Risk and trajectory of premature ischemic cardiovascular disease in women with a history of preeclampsia: a nationwide register-based study, *European Journal of Preventive Cardiology* (2023). [DOI: 10.1093/eurjpc/zwad003](https://doi.org/10.1093/eurjpc/zwad003)

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