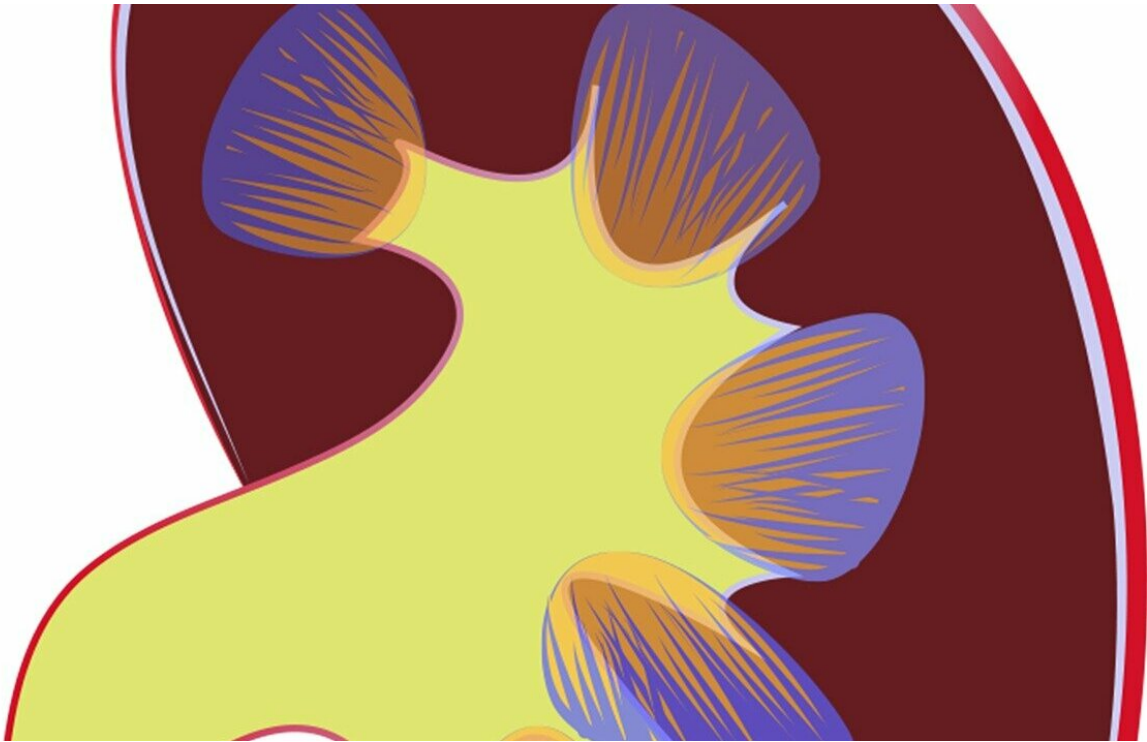


Preeclampsia linked to increased markers of brain cell damage, inflammation

August 3 2022



Credit: CC0 Public Domain

Preeclampsia is a serious complication of pregnancy characterized by high blood pressure and kidney damage. Mayo Clinic researchers found that women with a history of severe preeclampsia have more markers linked to brain cell damage and inflammation, compared to women who had uncomplicated pregnancies. The findings are being presented at the

Alzheimer's Association International Conference in San Diego.

Preeclampsia affects up to 15% of women. Left untreated, preeclampsia can lead to serious, even fatal, complications for mother and baby. Even after pregnancy, preeclampsia can cause long-term damage to a woman's kidneys, heart and brain.

Preeclampsia also has been associated with elevated risks of heart disease, stroke and [cognitive decline](#), as well as smaller brain volumes, later in life. However, no reliable early markers are available to determine which women are at risk.

In this study, researchers explored whether extracellular vesicles—small fluid-filled particles—of brain cell membranes circulating in the blood could be found in women years after their affected pregnancies.

Using health record data from the Rochester Epidemiology Project, a cohort of 40 women—33 with a history of mild preeclampsia and seven with severe preeclampsia—were matched to 40 women who had uncomplicated pregnancies. Compared to the [control group](#), women with a history of severe preeclampsia had a significantly higher concentration of extracellular vesicles that were positive for [amyloid beta](#), which is a toxic brain protein believed to be an essential component of Alzheimer's disease.

The presence of amyloid indicates brain cell damage and inflammation. The researchers found that levels of amyloid circulating in the blood also were increased.

"These markers of brain cell damage and inflammation in the blood of women with a history of preeclampsia may lead to new diagnostic and therapeutic strategies to improve women's [cognitive health](#) over their lifetimes," says Vesna Garovic, M.D., Ph.D., a Mayo Clinic nephrologist

and senior author of the study. "Further validation will be needed to determine the role of these markers in predicting cognitive decline."

The researchers also observed that higher levels of these markers were associated with lower volumes of total gray matter of the brain, which is important for cognitive and intellectual functions.

"The science of identification of circulating extracellular vesicles in the blood is rapidly evolving for many diseases," says Sonja Suvakov, M.D., Ph.D., a Mayo Clinic postdoctoral research fellow in nephrology and first author of the study. "These vesicles facilitate intercellular transport and communication. In some diseases, production of [extracellular vesicles](#) increases, along with a change of their content, which is why they are frequently viewed as markers of [cell damage](#). Future research is needed to determine their importance in the context of cognitive decline associated with a history of preeclampsia throughout a woman's life."

For women who are pregnant, Dr. Garovic advises being aware of preeclampsia signs and symptoms:

- Attend prenatal visits so your health care professional can monitor your blood pressure.
- Watch for sudden weight gain and swelling. While both are typical during healthy pregnancies, sudden weight gain or swelling, particularly in the face and hands, may be a sign of preeclampsia.
- Contact your health care professional immediately or go to an emergency department if you have severe headaches, visual disturbances, severe belly pain or severe shortness of breath. Because some aches and pains are common pregnancy complaints, it may be difficult to recognize a serious problem. If you're concerned about your symptoms, contact your health care professional.

For those with a history of preeclampsia, it's important to share that information with their [health care](#) professional. "We encourage women to discuss their reproductive history with their primary care providers," Dr. Garovic says. "The understanding of [women's](#) future health risks related to their reproductive history is constantly advancing."

More information: aaic.alz.org/overview.asp

Provided by Mayo Clinic

Citation: Preeclampsia linked to increased markers of brain cell damage, inflammation (2022, August 3) retrieved 25 June 2024 from <https://medicalxpress.com/news/2022-08-preeclampsia-linked-markers-brain-cell.html>

<p>This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.</p>
--