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STUDY PROVIDES INSIGHTS ON PREECLAMPSIA

Highlights

- A new test may help to rapidly diagnose preeclampsia in pregnant women.
- Elevated levels of fetal hemoglobin in the blood may play a role in the development of kidney damage associated with preeclampsia.

Preeclampsia affects 5% of pregnancies in the United States and is a leading cause of both maternal and fetal morbidity and mortality.

Washington, DC (July 20, 2017) — Researchers have developed a method that could help rapidly diagnose preeclampsia in pregnant women. They have also uncovered clues that might help explain why women with preeclampsia often develop an abnormal amount of protein in the urine, or proteinuria. The findings, which appear in an upcoming issue of the *Journal of the American Society of Nephrology* (JASN), may lead to better diagnostics and treatments for affected women.

Preeclampsia is a disorder specific to pregnancy that is characterized by elevated blood pressure and proteinuria. Preeclampsia can lead to kidney damage in many affected women. The only therapy currently available is delivery of the baby, but this often means that infants are born prematurely and may have medical problems related to their early delivery. More effective treatment strategies will depend on methods that would diagnose women with preeclampsia in a timely manner and a better understanding of preeclampsia's underlying mechanisms.

Recent studies indicate that preeclampsia is linked with the abnormal presence in the urine of kidney cells known as podocytes; however, available tests that can identify podocytes are expensive and time-consuming. In a study of 84 pregnant women (42 with preeclampsia and 42 with normal blood pressure), Vesna Garovic, MD (Mayo Clinic, Rochester, MN) and her colleagues found that a method they developed can rapidly detect fragments of podocytes in the urine of women with preeclampsia. They also found that fetal hemoglobin (the main oxygen transport protein in the human fetus), which is normally present in pregnant women's blood in small amounts, is present in higher amounts in preeclamptic women's blood.

"This increased amount of fetal hemoglobin in preeclampsia may be causing the release of podocyte fragments in the urine," said Dr. Garovic. "We hope that this information will

result in improved diagnostic procedures in women with preeclampsia; however, additional studies in larger numbers of patients and across different types of preeclampsia are needed.”

Study co-authors include Sarwat Gilani, MD, Ulrik Dolberg Anderson, MD, Muthuvel Jayachandran, PhD, Tracey Weissgerber, PhD, Ladan Zand, MD, Wendy White, MD, Natasa Milic, MD, PhD, Maria Lourdes Gonzalez Suarez, MD, PhD, Rangit Reddy Vallapureddy, MD, Åsa Nääv, MD, PhD, Lena Erlandsson, PhD, John Lieske, MD, Joseph Grande, MD, PhD, Karl Nath, MD, and Stefan Hansson, MD, PhD.

Disclosures: Dr. Garovic is the inventor of the technology used in this research; the technology has been licensed to a commercial entity. Dr. Garovic and Mayo Clinic have contractual rights to receive royalties from the licensing of this technology. Dr. Hansson holds patents for the diagnosis and treatment of preeclampsia and is one of the founders of the companies, Preelumina Diagnostics AB and A1M Pharma AB. All other authors reported no conflicts of interest.

The article, entitled “Urinary Extracellular Vesicles of Podocyte Origin and Renal Injury in Preeclampsia,” will appear online at <http://jasn.asnjournals.org/> on July 20, 2017, doi: 10.1681/ASN.2016111202).

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Tweet: Study provides insights on preeclampsia. Author's Twitter handle: @GarovicVesna

Facebook: Researchers have developed a method that could help rapidly diagnose preeclampsia in pregnant women. They have also uncovered clues that might help explain why women with preeclampsia often develop kidney damage. The findings, which appear in the *Journal of the*

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American Society of Nephrology, may lead to better diagnostics and treatments for affected women.

The legend that goes with the figure should read, “Renal injury and urinary extracellular vesicles positive for podocyte-specific proteins in preeclampsia: possible mechanisms.”

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