

In Preeclampsia, Researchers Identify Proteins that Cause Blood Vessel Damage

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Proteins released by the placenta may damage blood vessels in women with preeclampsia (PE), according to an abstract presented by Yale School of Medicine researchers at the Society for Gynecologic Investigation Conference March 17 in Reno, Nevada.

Other authors on the abstract included Yuehong Ma, Stefano Di Santo, Graciela Krikun, Antoine Malek and Henning Schneider.

Source: Yale University

In PE, a complication of pregnancy linked to life-threatening increases in high blood pressure after 20 weeks of gestation, it has long been recognized that substances called “microparticles” released by the placenta damage maternal blood vessels. Researchers at Yale, led by Seth Guller, sought to detect whether specific proteins were found in microparticles.

The team, including researchers from Berne, Switzerland, studied placentas obtained from patients with preeclampsia who had uncomplicated pregnancies delivered at term by cesarean section. They found that microparticles released from the placenta contain a protein that regulates clot formation (plasminogen activator inhibitor-1). They also found that microparticles contain soluble Flt-1, which inhibits blood vessel growth, and that microparticles contain extremely high levels of plasminogen activator inhibitor-2, a placental protein with no known function.

“In this study, we demonstrate for the first time that microparticles released by the placenta may contain factors that damage maternal blood vessels in preeclampsia,” said Guller, associate professor in the Department of Obstetrics, Gynecology & Reproductive Sciences.

Guller said for this study, the team only detected whether specific proteins were found in microparticles. “In the future, we will determine whether they are biologically active—promote damage in vessel culture models—and whether they are present in the blood of women with preeclampsia,” said Guller.

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