

# New finding may help explain development of preeclampsia

February 8 2008

---

In a study of pregnant women, those with pregnancy-induced high blood pressure were found to have higher levels of a peptide that raises blood pressure in the pieces of tissue linking mother and fetus, according to researchers at Wake Forest University Baptist Medical Center. The finding, reported online in the journal *Hypertension*, may help explain how the disorder develops.

Preeclampsia, or high blood pressure induced by pregnancy, affects 7 to 10 percent of pregnancies in the United States and is the second-leading cause of maternal mortality. It is the leading cause of pre-term delivery and contributes significantly to stillbirths and death in newborns.

The researchers found that in women with preeclampsia, levels of angiotensin II (Ang II), a hormone that constricts blood vessels and causes blood pressure to rise, was doubled in the chorionic villi, part of the placenta that links mother and fetus and supplies food and oxygen.

“This finding may be part of the preeclampsia puzzle,” said Lauren Anton, a graduate student who is first author on the research. “Anything that gets us closer to understanding this disease is important because there is no treatment and no cure and women are still delivering babies too early.”

The researchers theorize that Ang II may restrict the fetal vessels that lie within the chorionic villi, which not only raises blood pressure, but also lowers oxygen and nutrient flow to the baby and may result in lower

birth weight and other complications of preeclampsia.

The study involved 21 women with preeclampsia and 25 women without the disorder. After delivery, tissue sections were taken from the center of the placenta for analysis.

Ang II is part of the renin angiotensin system (RAS) that regulates blood pressure. The system has been shown to play an important role in preeclampsia. However, changes in the system also occur in women who don't develop the condition. In normal pregnancies, estrogen causes increased levels of several hormones, including Ang II, in the blood. Despite the increase of Ang II in the blood during pregnancy, most women do not develop preeclampsia.

This the first study to demonstrate that all three peptides involved in the RAS are found in the chorionic villi of both normal and preeclamptic women. And, it was the first to show that levels of Ang II are higher in the chorionic villi of women with preeclampsia.

“This implies that local tissues are contributing to the problem,” said K. Bridget Brosnihan, Ph.D., senior researcher, who has been studying preeclampsia for 12 years. “The hormone is remarkably elevated in this relatively small tissue, which implies that it has an important role in the development of preeclampsia.”

The researchers hope that the findings may one day lead to treatment for preeclampsia.

ACE inhibitor drugs are currently used to lower Ang II in non-pregnant women with hypertension, but these drugs cannot be given to pregnant women. The study authors suggest that other therapies aimed at regulating blood pressure might be beneficial if they target the chorionic villi rather than the system as a whole. They are currently working to

determine if growth factors that cause the placenta's blood supply to develop may also be regulated by the increase in Ang II.

Source: Wake Forest University Baptist Medical Center

Citation: New finding may help explain development of preeclampsia (2008, February 8)  
retrieved 20 April 2024 from <https://medicalxpress.com/news/2008-02-preeclampsia.html>

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.