

New findings may help explain high blood pressure in pregnancy

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Virginia Commonwealth University School of Medicine researchers have discovered that the infiltration of white blood cells into an expectant mother's blood vessels may explain high blood pressure in pregnancy.

The findings could lead to novel avenues of treatment for pregnant women with preeclampsia based on regulation of white blood cells called neutrophils, their products or their cellular effects.

Preeclampsia is one of the most significant health problems in pregnancy and a leading cause worldwide of both premature delivery and of sickness and death of the mother and baby. Research has shown that the blood vessels of women with preeclampsia are dysfunctional, but the cause of preeclampsia is not known, and the only treatment is delivery of the baby.

In a study published online in the October issue of *Hypertension*, a journal of the [American Heart Association](#), the VCU team reported that an infiltration of white blood cells may be responsible for the high blood pressure observed in preeclampsia. These white blood cells release [reactive oxygen species](#) that the team showed enhance the reactivity of the mother's blood vessels to hypertensive hormones by activating the RhoA kinase pathway in the blood vessels. [Read the study here.](#)

According to corresponding author Scott W. Walsh, Ph.D., professor in the VCU Department of [Obstetrics and Gynecology](#), the RhoA kinase

pathway is an intracellular mechanism in the [smooth muscle cells](#) of blood vessels that makes the blood vessels more reactive to hormones that increase blood pressure.

"In other words, the blood vessels contract more easily to the hormones so blood pressure increases even though the hormone levels do not increase," said Walsh.

"These findings may explain the enhanced blood pressure response of women who develop preeclampsia, which was first described almost 40 years ago," he said.

Walsh said some potential treatments on the horizon for clinical studies are [monoclonal antibodies](#) that could prevent the infiltration of the [white blood cells](#), and selective RhoA kinase inhibitors that could prevent the enhanced reactivity of the mother's blood vessels.

Provided by Virginia Commonwealth University

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