High blood pressure treatment in pregnancy is safe, prevents maternal heart risks

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Treatment for high blood pressure during pregnancy appears safe for many women and may reduce maternal risk for severe hypertension without increasing fetal and neonatal risks, according to a new American

Heart Association scientific statement published today in the Association's journal *Hypertension*.

A scientific statement is an expert analysis of current research and may inform future clinical practice guidelines. In this statement, "Hypertension in Pregnancy: Diagnosis, Blood Pressure Goals, and Pharmacotherapy," experts in obstetrics and gynecology, maternal-fetal medicine, cardiology, nephrology, hypertension and internal medicine reviewed and analyzed quality studies focusing on high blood pressure during pregnancy including gestational hypertension and preeclampsia/eclampsia.

The latest American Heart Association statistics indicate hypertension during pregnancy, defined as a systolic pressure (the top number in a blood pressure reading) of 140 mm Hg or higher, is the second leading cause of maternal death worldwide. Severe cases are associated with increased risks of cardiovascular complications for mothers immediately or soon after delivery, and for years after pregnancy. Hypertension during pregnancy increased the risks for complications for the offspring such as preterm delivery, small for gestational age and low birthweight. Rates of hypertension during pregnancy are increasing globally, and the data indicate that it disproportionately affects women who are from diverse racial and ethnic backgrounds in the U.S., particularly those who are Black, American Indian or Alaskan Native.

The goals of treatment during pregnancy include preventing severe hypertension and preventing early delivery to allow the fetus time to mature before delivery.

"For decades, the benefits of blood pressure treatment for pregnant women were unclear. And there were concerns about fetal well-being from exposure to antihypertensive medications," said Chair of the statement writing group Vesna D. Garovic, M.D., Ph.D., a professor of

medicine, chair of the division of nephrology and hypertension with a joint appointment in the department of obstetrics and gynecology at Mayo Clinic in Rochester, Minnesota. "Through our comprehensive review of the existing literature, it is reassuring to see emerging evidence that treating high blood pressure during pregnancy is safe and effective and may be beneficial at lower thresholds than previously thought. Now, we have the current statement focused on hypertension during pregnancy to help inform optimal treatment and future research."

According to the statement, among high-income countries, the United States has one of the highest hypertensive-related maternal mortality rates. Cardiovascular disease, which includes stroke and heart failure, now accounts for up to half of all maternal deaths in the U. S, and pregnancy-related stroke hospitalizations increased more than 60% from 1994 to 2011. Preeclampsia, which occurs when hypertension during pregnancy is accompanied by signs of liver or kidney problems such as protein in the urine, affects 5% to 7% of pregnancies and is responsible for more than 70,000 maternal deaths and 500,000 fetal deaths worldwide every year, according to the American Heart Association.

"Given the rising number of cases of hypertension during pregnancy, together with hypertension-related complications, the problem has become a public health crisis, particularly among women from racially and ethnically diverse backgrounds," Garovic said.

While the definition of hypertension for the general population is established at 130/80 mm Hg according to the 2017 in the American College of Cardiology (ACC)/ American Heart Association (AHA) Guideline for the Prevention, Detection, Evaluation and Management of High Blood Pressure in Adults, most guidelines worldwide define hypertension during pregnancy as 140/90 mm Hg.

There is a lack of consensus about when to start hypertension treatment

during pregnancy because of concerns about how medications may impact the fetus. Several health advocacy groups recommend beginning treatment when blood pressure measures during pregnancy are from 140/90 mm Hg (Canadian guidelines) to 160/110 mm Hg (U.S. guidelines).

The new statement points to evidence that blood pressure-lowering therapy for pregnancy hypertension significantly reduces the incidence of severe hypertension. Additional research is needed to determine the extent to which treating hypertension at a lower threshold may decrease serious hypertensive complications, namely organ damage and hypertensive emergencies. Reducing severe hypertension may be particularly important in communities that lack resources and expertise to respond to hypertension emergencies, the statement authors write.

"Future studies should address whether lowering the threshold for treating hypertension during pregnancy might allow for safe and timely blood pressure control and avoid a rushed delivery because of uncontrolled hypertension," said Garovic.

So far, the latest research indicates that treating hypertension during pregnancy with blood pressure-lowering medicine does not appear to negatively impact fetal growth or development. Preventing hypertension during pregnancy supports maternal health both during and after pregnancy. It is well known that those who have hypertension during pregnancy are more likely to develop sustained hypertension after pregnancy at a higher rate compared to those whose blood pressure was normal during pregnancy. The statement reinforces recent research that suggests lifestyle changes before and during pregnancy have the potential to improve maternal and fetal outcomes:

- Dietary changes before and during pregnancy can limit weight gain and improve pregnancy outcomes.

- Exercise during pregnancy may reduce gestational hypertension risk by about 30% and preeclampsia risk by about 40%.

The statement also highlights these areas of concern:

- There is emerging evidence that hypertension after delivery (postpartum) may be associated with significant maternal health problems.
- The current science suggests physicians should individualize treatment decisions, considering risk factors and patient preferences.
- The care of women with hypertension during pregnancy is often complex, and a multispecialty team of health care professionals may be beneficial.

"Future clinical trials are needed to address questions about when to begin treatment for high blood pressure during pregnancy," Garovic said. "Also, close collaboration between the American Heart Association and American College of Obstetricians and Gynecologists will be instrumental in optimizing diagnosis and treatment of hypertension during pregnancy and in improving immediate and long-term outcomes for many women who develop hypertension during pregnancy."

This scientific statement was prepared by the volunteer writing group on behalf of the American Heart Association's Council on Hypertension; the Council on the Kidney in Cardiovascular Disease Science Subcommittee; the Council on Arteriosclerosis, Thrombosis and Vascular Biology; the Council on Lifestyle and Cardiometabolic Health; the Council on Peripheral Vascular Disease; and the Stroke Council. American Heart Association scientific statements promote greater awareness about cardiovascular diseases and stroke issues and help facilitate informed healthcare decisions. Scientific Statements outline what is currently known about a topic, and what areas need additional

research. While scientific statements inform the development of guidelines, they do not make treatment recommendations. American Heart Association guidelines provide the Association's official clinical practice recommendations.

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