

Public release date: 5-Feb-2007

Contact: Karen Astle

karen.astle@heart.org

214-706-1392

[American Heart Association](#)

High blood pressure during pregnancy may lead to postmenopausal heart disease

American Heart Association rapid access journal report

DALLAS, Feb. 6 ·Women who develop high blood pressure during pregnancy are more likely to develop increased coronary calcification later in life than those who maintained a normal blood pressure, researchers said in *Hypertension: Journal of the American Heart Association*.

"For some women, pregnancy functions the same way as stress tests, such as an oral glucose tolerance test," said Michiel L. Bots, M.D., Ph.D., associate professor of epidemiology and senior author of the study and at the Julius Center for Health Sciences and Primary Care in Utrecht, The Netherlands. "In an oral glucose tolerance test you stress the system that deals with a person's glucose balance. If the system does not function properly, glucose goes up to excessive levels. It is a means to identify those at high risk of developing diabetes. Similarly, gestational diabetes, pregnancy-induced hypertension and pre-eclampsia provide an opportunity to identify individuals with an increased risk of type-2 diabetes mellitus and cardiovascular disease at an early age."

According to Bots, pregnancy causes stress, increasing blood pressure to abnormally high levels in some women. When pregnancy ends, the blood pressure usually returns to normal. But the problem is not permanently solved. Later in life these women are at risk for high blood pressure, perhaps diabetes, and have a higher risk of coronary events.

"Our study adds to that evidence by showing a relationship with atherosclerosis. Since it is well established that the underlying mechanism of events is the development of atherosclerosis, our results make the evidence on this issue stronger," Bots said.

The researchers studied the impact of pregnancy hypertension history in 491 healthy postmenopausal women selected from participants enrolled in the PROSPECT study from 1993-97. PROSPECT was one of two Dutch groups participating in the European Prospective

Investigation into Cancer and Nutrition (EPIC). In a questionnaire, almost 31 percent of the women surveyed said they had high blood pressure during pregnancy.

Between 2004 and 2005, researchers used Multi Detector Computed Tomography (MDCT) to measure coronary artery calcium — a marker for coronary artery disease — in the women.

Women with a history of high blood pressure during pregnancy had a 57 percent increased risk of having coronary calcification (calcium buildup in the vessels that is associated with atherosclerosis) compared with women who had normal blood pressure during pregnancy. The relationship remained after adjusting for age. High blood pressure during pregnancy was also a marker for increased body mass index and increased diastolic blood pressure.

In the study, the relationship between high blood pressure in pregnancy and cardiovascular disease several decades later held for women who had mild elevations in blood pressure during pregnancy as well as for women who developed pre-eclampsia. Pre-eclampsia is a more serious complication of pregnancy. It's characterized by very high blood pressure, edema and risk of organ damage.

Previous research has established an association between pre-eclampsia and hypertension and increased risk of heart disease later in life.

Study limitations included small sample size and the reliance on recall of blood pressure changes during pregnancy many years earlier, which could have led to a misclassification.

Bots said that women who develop high blood pressure during pregnancy may need to be referred to a program that includes cardiovascular risk factor management and be closely monitored for increases in blood pressure, cholesterol and weight.

"Usually it is assumed that development of high blood pressure during pregnancy has no long-term consequences since it subsides after pregnancy," Bots said. "Our research and that of others may have important implications for the management of women who have high blood pressure in pregnancy."

###

The Netherlands Organization for Health Research and Development funded the study.

Co-authors are S. Sabour, M.D., D.Sc.; A. Franx, M.D., Ph.D.; A. Rutten, M.D.; D.E. Grobbee, M.D., Ph.D.; M. Prokop M.D., Ph.D.; M.E.L. Bartelink, M.D., Ph.D.; and Y.T. van der Schouw, Ph.D.

Statements and conclusions of study authors published in the American Heart Association scientific journals are solely those of the study authors and do not necessarily reflect association policy or position. The American Heart Association makes no representation or warranty as to their accuracy or reliability.
