

White coat and masked hypertension associated with higher rates of heart and vascular disease

November 9 2015

Patients whose blood pressures spikes in the doctor's office but not at home, and patients whose blood pressure spikes at home but not in the doctor's office, suffer more heart attacks, heart failure, and strokes than patients with normal blood pressures in both settings, UT Southwestern Medical Center researchers have found.

"Previous studies on [white coat](#) hypertension - [blood pressure](#) that is high in a medical setting but normal at home - have shown conflicting results, and many in the medical community have viewed it as a benign condition. But our research suggests that white coat hypertension is associated with an increase in heart and vascular disease," said Dr. Wanpen Vongpatanasin, Professor of Internal Medicine at UT Southwestern and senior author of this study.

Similarly, patients with a condition called "masked hypertension" that is the reverse of white coat hypertension - [normal blood pressure](#) in their physician's office but high readings at home - have more [cardiovascular events](#) than patients with consistently normal blood pressures.

The findings were published online today in the *Journal of the American College of Cardiology* and will be featured in the Nov. 17 print issue.

Dr. Vongpatanasin said white coat hypertension is likely caused by anxiety in the medical setting. Masked hypertension may be caused by

stress in the home setting, or because patients are not consistent about taking medicine until a doctor's visit is looming, she added.

The researchers looked at data from individuals who participated in the Dallas Heart Study, a longitudinal, multiethnic, population-based study that has followed more than 3,000 Dallas County residents. In the study, 3 percent of participants had white coat hypertension while 18 percent had masked hypertension.

The study also measured each participant's urine albumin-to-creatinine ratio (UACR) and cystatin C - indicators of kidney disease - and assessed the stiffness of his or her aorta.

Finally, the participants were followed for nine years to track cardiovascular events, which included heart attack, stroke, heart failure, atrial fibrillation, heart bypass surgery, angina, and cardiac catheterization procedures.

The study found that both white coat hypertension and masked hypertension were associated with an increase in cardiovascular events over the years, even after adjustment for traditional risk factors, such as diabetes. A second key finding was that both types of hypertension were associated with a higher incidence of organ damage, including aortic stiffness and kidney damage.

Interestingly, the study suggested that masked hypertension was more common than generally believed, as almost 1 in 5 participants had elevated blood pressure only at home.

"Given the high prevalence of masked hypertension in this population, our study supports the routine use of home blood pressure monitoring for U.S. adults - both for those who are taking antihypertensive drugs as well as those who are not," said Dr. Vongpatanasin.

"These findings have important implications, and suggest that monitoring only in the physician's office may not tell the full story about blood pressure and [blood pressure control](#)," said Dr. James de Lemos, Professor of Internal Medicine at UT Southwestern and a contributor to the study. "Monitoring blood pressure in the home setting appears to identify a substantial number of individuals at risk for the long-term effects of hypertension who would have been missed had only the clinic blood pressure been considered." Dr. de Lemos holds the Sweetheart Ball-Kern Wildenthal, M.D., Ph.D., Distinguished Chair in Cardiology.

"Previous studies in Japan and Europe have shown a link between white coat hypertension and cardiovascular complications, but this is the first direct evidence of organ damage and increased cardiovascular problems in a U.S. population," added Dr. Vongpatanasin, who holds the Norman and Audrey Kaplan Chair in Hypertension.

Provided by UT Southwestern Medical Center

Citation: White coat and masked hypertension associated with higher rates of heart and vascular disease (2015, November 9) retrieved 2 May 2024 from <https://medicalxpress.com/news/2015-11-white-coat-masked-hypertension-higher.html>

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