

Impact of Blood Pressure and Blood Pressure Change during Middle Age

The following is a synopsis of “Impact of Blood Pressure and Blood Pressure Change During Middle Age on the Remaining Lifetime Risk for Cardiovascular Disease: The Cardiovascular Lifetime Risk Pooling Project,” published in the December 19, 2011, issue of *Circulation*.



What is already known on this topic?

Cardiovascular disease (CVD), including heart disease and stroke, is responsible for more than one third of all deaths in the United States. Although CVD mortality rates have decreased over the past four decades, the disease still remains the leading cause of death and one of the top causes of functional disability. Multiple studies have shown that an individual's blood pressure is one of the most important modifiable risk factors for CVD. Research also shows that lifetime risk for CVD, particularly stroke, increases dramatically with increasing blood pressure and the development of high blood pressure, also known as hypertension.

What is added by this document?

This study was the first to examine the effect of changes in blood pressure during middle age on individuals' subsequent lifetime risks for CVD, including coronary heart disease and stroke, among a large, diverse U.S. population. The study

analyzed blood pressure changes of 61,585 participants for an average of 14 years until they reached the age 55. It then followed participants until the occurrence of a CVD event, death, or age 95.

Results show that changes in blood pressure during middle age appear to have a substantial impact on lifetime risk for CVD. In the study, individuals who developed pre-hypertension or hypertension during middle age saw an increase in their lifetime risk for a CVD event, such as a heart attack or stroke. Findings showed the highest lifetime risk for CVD was among men who progressed to hypertension during middle age, with almost 70% experiencing a CVD event by the age of 85. In contrast, individuals who maintained or reduced their blood pressure to normal levels by the age of 55 had the lowest lifetime risks, approximately 35%–40% and 22%–25% for men and women, respectively. Furthermore, compared with whites, blacks had a higher lifetime risk for CVD, and this risk increased with increasing blood pressure for each age group studied.

What are the implications for public health practice?

The results demonstrate that taking blood pressure changes into account can provide a more accurate estimate of lifetime risk for CVD and aid in developing strategies for individualized risk prediction and prevention. Because delaying until middle age or preventing the onset of hypertension appears to have a significant impact on an individual's remaining lifetime risk for

CVD, public health officials and health care providers should continue to emphasize the importance of maintaining a healthy blood pressure during middle age to prevent CVD later in life.

The findings also suggest the length of time that a person has high blood pressure may have a dose-response effect on the lifetime risk for CVD, including coronary heart disease and stroke.

Resources

Centers for Disease Control and Prevention
High Blood Pressure
www.cdc.gov/bloodpressure

American Heart Association
High Blood Pressure
www.heart.org/HEARTORG/Conditions/HighBloodPressure/High-Blood-Pressure_UCM_002020_SubHomePage.jsp

American Society of Hypertension
www.ash-us.org

Citation

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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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