



## High-normal Blood Pressure Spells Risk of Heart Failure



According to a study by scientists at Johns Hopkins, high-normal blood pressure during young adulthood can lead to subclinical heart damage by middle age and could lead to full-blown heart failure. The report on the findings has been published in the *Journal of the American College of Cardiology*.

The study followed 2,500 men and women over a period of 25 years. Each participant's cumulative blood pressure exposure was measured over time and the participants were divided into groups that were defined by their readings. Only about 3 percent of the patients met the definition of hypertension at the beginning of the study. Cholesterol, blood sugar and body mass were also monitored but the influence of these factors was eliminated from the analysis. At the end of the 25 years, all participants underwent ultrasound heart imaging to assess how well their hearts were pumping as well as sophisticated ultrasound to visualise how their heart behaved during contraction and relaxation.

135 of the 2,479 patients had evidence of clinical heart failure on simple ultrasound with mildly elevated pressure that did not seem to have any appreciable effects on the heart's pumping ability as measured by standard echocardiogram. However, when focus was shifted from the heart's pumping ability to how well it handled pressure, different findings emerged.

The researchers found that people with highest diastolic pressure were 70 percent more likely to show signs of abnormal relaxation as compared to people with lowest diastolic pressure. Patients with persistent elevations in their systolic blood pressure were 46 percent more likely to have abnormal contraction.

"Our results suggest the heart muscle may be more exquisitely sensitive to the effects of even subtle elevations in blood pressure than we thought," says principal investigator João Lima, M.D., M.B.A., a professor of medicine and radiology at the Johns Hopkins University School of Medicine and director of cardiovascular imaging at its Heart and Vascular Institute.

While clinical guidelines define hypertension as blood pressure above 140/90 and recommend a targeted range of 150/90, the results of this study suggest that applying a single cut-off measurement may not be the right approach for all ages and that the definition of "normal" should change with age. 150/90 may be a reasonable target for a 60 year old but it can be too high for a 28 year old.

"Our results suggest that 'high-normal' blood pressure may be too high and far from normal for some people," says lead author Satoru Kishi, M.D., a cardiologist at Mitsui Memorial Hospital in Tokyo who worked on the study as a research fellow at the Johns Hopkins University School of Medicine. 'A concerning number of young adults with pressures in the high-normal range develop insipient heart dysfunction in middle age.'

Overall, these findings suggest that regular blood pressure checks should begin early in life and people with borderline pressures should be followed-up frequently so that early treatment can begin if they have hypertension.

Source: Johns Hopkins Medicine

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