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**Cardiovascular and metabolic predictors of progression of prehypertension into hypertension: the Strong Heart Study.**

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* [Hypertension. 2009 Nov;54(5):954-5.](http://www.ncbi.nlm.nih.gov/pubmed/19720951)

**Abstract**

Prehypertension (defined by the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure) frequently evolves to hypertension (HTN) and increases cardiovascular risk. It is unclear whether metabolic and/or cardiac characteristics favor development of HTN in prehypertensive subjects. We evaluated baseline anthropometric, laboratory, and echocardiographic characteristics of 625 untreated prehypertensive participants in the Strong Heart Study, without prevalent cardiovascular disease (63% women; 22% with diabetes mellitus; mean age: 59+/-7 years) to identify predictors of the 4-year incidence of HTN. Diabetes mellitus was assessed by American Diabetic Association criteria, and a diabetes-specific definition of HTN was used. Four-year incidence of HTN was 38%. Incident HTN was independently predicted by baseline systolic blood pressure (odds ratio [OR]: 1.60 per 10 mm Hg; 95% CI: 1.30 to 2.00; P<0.0001), waist circumference (OR: 1.10 per 10 cm; 95% CI: 1.01 to 1.30; P=0.04), and diabetes mellitus (OR: 2.73; 95% CI=1.77 to 4.21; P<0.0001), with no significant effect for age, sex, hemoglobin A1c, homeostatic model assessment index, C-reactive protein, fibrinogen, low-density lipoprotein and high-density lipoprotein cholesterol, triglycerides, plasma creatinine, or urine albumin:creatinine ratio. Higher left ventricular mass index (OR: 1.15 per 5 g/m(2.7); 95% CI: 1.01 to 1.25; P=0.03) or stroke volume index (OR: 1.25 per 5 mL/m(2.04); 95% CI: 1.10 to 1.50; P=0.03) was also identified, together with baseline systolic blood pressure and the presence of diabetes mellitus, as an independent predictor of incident HTN, without an additional predictive contribution from other anthropometric, metabolic, or echocardiographic parameters (all P>0.10). Thus, progression to HTN in 38% of Strong Heart Study prehypertensive participants could be predicted by higher left ventricular mass and stroke volume in addition to baseline systolic blood pressure and prevalent diabetes mellitus.

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