

Left ventricular systolic dysfunction detected by speckle tracking in hypertensive patients with preserved ejection fraction

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Abstract

Introduction

The spectrum of hypertensive heart disease is wide, and can include left ventricular dysfunction. The development of echocardiographic parameters to improve patient stratification and to identify early adverse changes could be clinically useful.

Aim

To identify subclinical left ventricular dysfunction in hypertensive subjects with preserved ejection fraction (>55%), identified by global parameters of myocardial strain on speckle tracking imaging.

Methods

This was a comparative observational study of two groups of individuals: normotensive (n=20, age 59±7 years, 55% male) and hypertensive (n=229, age 62±12 years, 57% male). Left ventricular function was assessed by various conventional clinical and echocardiographic parameters and global longitudinal and circumferential myocardial strain. Cut-off values to detect subclinical left ventricular dysfunction were established and applied in the hypertensive group. The Student's t test, Mann-Whitney test and chi-square test were used for the comparative statistical analysis.

Results

Most hypertensive subjects (53.7%) had grade I hypertension; blood pressure was controlled in 64.9%, and 54.8% showed left ventricular structural changes. Comparison between the normotensive and hypertensive groups showed no significant differences in parameters of global longitudinal or circumferential systolic strain. Application of the cut-offs to the hypertensive group identified 35 individuals (15.3%) as having subclinical left ventricular systolic dysfunction as assessed by global longitudinal myocardial strain parameters.

Conclusions

In this group of hypertensive patients, global myocardial strain parameters identified a group of individuals with subclinical left ventricular systolic dysfunction despite preserved ejection

fraction. The clinical relevance of these findings needs to be assessed in long-term follow-up studies.

Keywords

Hypertension, Myocardial strain, Subclinical left ventricular dysfunction, Echocardiography, Speckle tracking