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Gender differences in left ventricular structure and function during antihypertensive treatment: the Losartan Intervention for Endpoint Reduction in Hypertension Study.

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Abstract

In hypertensive patients with left ventricular hypertrophy, antihypertensive treatment induces changes in left ventricular structure and function. However, less is known about gender differences in this response. Baseline and annual echocardiograms until the end of study or a primary end point occurred were assessed in 863 hypertensive patients with electrocardiographic left ventricular hypertrophy aged 55 to 80 years (mean: 66 years) during 4.8 years of randomized losartan- or atenolol-based treatment in the Losartan Intervention for Endpoint Reduction in Hypertension Echocardiography substudy. Left ventricular hypertrophy was diagnosed as left ventricular mass divided by height(2.7) ≥ 46.7 g/m(2.7) and 49.2 g/m(2.7) in women and men, respectively, and systolic function as ejection fraction and stress-corrected midwall fractional shortening. Women included more patients with obesity, isolated systolic hypertension, and mitral regurgitation (all $P < 0.01$). Ejection fraction, stress-corrected midwall shortening, and prevalence of left ventricular hypertrophy were higher in women at baseline and at the end of study (all $P < 0.01$). In particular, more women had residual eccentric hypertrophy (47% versus 32%; $P < 0.01$) in spite of similar in-treatment reduction in mean blood pressure. In logistic regression, left ventricular hypertrophy at study end was more common in women (odds ratio: 1.61; 95% CI: 1.16 to 2.26; $P < 0.01$) independent of other significant covariates. In linear regression analyses, female gender also predicted 2% higher mean in-treatment ejection fraction and 2% higher mean stress-corrected midwall shortening (both $\beta = 0.07$; $P < 0.01$). Hypertensive women in this study retained higher left ventricular ejection fraction and stress-corrected midwall shortening in spite of less hypertrophy regression during long-term antihypertensive treatment.

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