Gender Differences in Left Ventricular Hypertrophy Regression

To the Editor:

We read with interest the article of Os et al1 about the effects of losartan in women with hypertension and left ventricular hypertrophy from the Losartan Intervention For Endpoint reduction in hypertension (LIFE) Study. The main finding in this posthoc analysis was that, compared with atenolol-based treatment, losartan-based therapy resulted in fewer overall cardiovascular events and strokes, reduced total mortality, and less new-onset diabetes in women with hypertension and left ventricular hypertrophy (LVH). Overall, fewer events occurred in women than in men. A gender difference in the primary composite end point was observed even after adjustment for baseline characteristics: 476 women (9.6%) and 620 men (14.7%; P<0.001) experienced a primary end point. Furthermore, all of the secondary end points tended to occur less frequently in women.

These treatment effects occurred in the absence of major differences in blood pressure control and seem to be related to mechanisms other than blood pressure lowering. Regression of ECG-LVH reduces cardiovascular morbidity and mortality. Notably, losartan-based antihypertensive treatment resulted in a greater regression of ECG-LVH than did atenolol-based therapy in the LIFE Study, and this was consistent for gender subgroups.2 However, in the LIFE Study, Okin et al3 reported that women had less regression of ECG-LVH than men, independent of baseline gender differences in the severity of LVH and after taking into account treatment effects.

How is possible that, whereas there is greater ECG-LVH regression in men, there are fewer events in women? Two studies analyzed the effects of a candesartan-based regimen in clinical practice in the regression of LVH, one assessed by echocardiography and the other by ECG.4,5 In the first one, the data showed that left ventricular mass index was reduced by 9.6% in men and 12.5% in women (P=0.01).4 The second one reported that, although LVH regressed in both genders, not all of the ECG criteria detect LVH and its changes similarly. Thus, the voltage-duration product criteria detected ECG-LVH and its respective changes secondary to antihypertensive therapy better than voltage criteria. Although the use of both product criteria seem clearly preferable to voltage for the assessment of ECG-LVH in daily clinical practice, the Cornell product criterion seemed to be markedly more useful in women, and the Sokolow-Lyon product criterion was preferable in men.5 Because in the LIFE Study only Sokolow voltage and Cornell product criteria were used, this could at least in part explain this contradiction.

These findings suggest that, with a similar antihypertensive regimen and blood pressure control rates, women with hypertension and LVH have fewer cardiovascular events than men. Although different studies show contradictory results about the effects of antihypertensive agents on ECG-LVH regression, this may be related to the use of different ECG criteria.

Disclosures

None.

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1. Os I, Franco V, Kjeldsen SE, Manhem K, Devereux RB, Gerdts E, Hille DA, Lyle PA, Okin PM, Dahlöf B, Oparil S. Effects of losartan in women with hypertension and left ventricular hypertrophy. Results from the Losartan Intervention for Endpoint reduction in Hypertension Study. Hypertension. 2008;51:1103–1108.


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Hypertension. 2008;51:e58; originally published online April 28, 2008;
doi: 10.1161/HYPERTENSIONAHA.108.113225

Hypertension is published by the American Heart Association, 7272 Greenville Avenue, Dallas, TX 75231
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Print ISSN: 0194-911X. Online ISSN: 1524-4563

The online version of this article, along with updated information and services, is located on the
World Wide Web at:
http://hyper.ahajournals.org/content/51/6/e58

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