Antihypertensive Treatment and Left Ventricular Mass Reduction: The Importance of Choosing the Comparator

To the Editor:

The meta-analysis by Fagard et al1 on the effects of various antihypertensive drug classes on left ventricular mass is based on the pairwise comparisons of the original studies and avoids the problems with previous meta-analyses, which considered each treatment arm of the different studies as a separate observation, without respect for the original pairwise design.2,3 The authors should be commended for choosing an approach that avoids indirect comparisons among drug classes.

On the other hand, the method used by Fagard et al1 opens new questions. The authors compare each drug class with the other classes combined and conclude that diuretics, calcium-channel blockers, and angiotensin-converting enzyme inhibitors do not differ from their comparators, whereas angiotensin II receptor blockers are significantly more effective in reducing left ventricular mass. The study also gives unequivocal evidence that β-blockers are inferior to other drugs in the regression of left ventricular hypertrophy.

When conducting such analyses, however, the choice of the comparator should be carefully considered. Table 1 of the article by Fagard et al1 shows that most of the head-to-head comparisons involving angiotensin II receptor blockers have been conducted against β-blockers (1680 of 2304 patients [70%]). On the other hand, angiotensin-converting enzyme inhibitors, calcium-channel blockers, and diuretics have been compared with β-blockers in only 291 (12%) of 2525 patients, 424 (20%) of 2100 patients, and 285 (21%) of 1339 patients, respectively.

The hypothesis can be made that the superiority of angiotensin II receptor blockers over other drug classes in determining left ventricular mass regression is likely based at least in part on the selective advantage given by the fact that they were preferentially evaluated against β-blockers, admittedly the least effective opponent.1–3 Support for this hypothesis is given by the fact that being assigned to angiotensin II receptor blocker treatment had no relevance on left ventricular mass changes in a multivariate analysis (Table 3) and that comparison of angiotensin II receptor blockers with other classes after the exclusion of β-blockers failed to reach statistical significance.

We share the wise author comment that, in their article, “the superiority of angiotensin II receptor blockers appears to be less convincing than the inferiority of β-blockers,”1 and suggest that the apparent superiority of angiotensin II receptor blockers might depend on the comparators chosen in the studies available for the meta-analysis. The effects of the comparator choice should be adequately taken into account in future analyses on this issue.

Disclosures

None.

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