Left-Ventricular Hypertrophy and Coronary Artery Disease

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Left-ventricular hypertrophy (LVH) is an independent predictor of risk in the general population,\(^1\) in essential hypertension,\(^2\) and in coronary artery disease (CAD).\(^3\) However, it can regress with therapy. In this context, angiotensin II (AII) receptor blockers, angiotensin-converting enzyme (ACE) inhibitors, and calcium antagonists are the most effective drugs.\(^4\) A recent meta-analysis showed that regression of LVH is associated with a lower risk of future events.\(^5\) Thus, detection of LVH and treatment are very important in some clinical situations. In terms of CAD patients, only one study has evaluated the prevalence of LVH.\(^3\) That study,\(^3\) published in 1992, evaluated 785 subjects, most of whom were black and had hypertension. Thus, further studies including other ethnic groups and reporting up-to-date information will be helpful in this setting.

In the present issue of the American Journal of Hypertension, Ang et al\(^6\) further analyzed this problem. They evaluated the prevalence of LVH in 267 white patients with stable, treated angina and its relationship with blood pressure (BP) at the time of the study (19 months after coronary angiography). Left-ventricular hypertrophy, defined as a left-ventricular mass index (LVMI) >115 g/m\(^2\) in men and >95 g/m\(^2\) in women, was present in 73% of subjects. When LVH was defined according to other cutoff values, its prevalence was 50–75%. Multiple logistic regression analysis showed that a history of hypertension, body mass index, and age were independently related to LVH. Ang et al\(^6\) reported that 62% of LVH patients had nonhypertensive blood pressure (BP). Ambulatory BP monitoring was performed in 57% of the population. ACE inhibitors, AII receptor blockers, and calcium antagonists were used in 56%, 13%, and 27% of subjects, respectively. The authors concluded that LVH was very common in patients with stable, treated angina, and that the majority of them had nonhypertensive BP at the time of the study. These results add to our knowledge about the prevalence and determinants of LVH in CAD patients. However, it should be noted that ambulatory BP monitoring was performed in 57% of subjects. This aspect does not provide an opportunity to estimate thoroughly the impact of ambulatory BP on LVMI. Indeed, ambulatory BP could not be included in the multiple regression analysis. Moreover, a nonhypertensive BP at the time of the study does not exclude a substantial influence of BP on LVMI during time. Thus, the impact of BP on LVMI was probably underestimated in this study. In any case, it is known that LVH is also influenced by other factors that could explain its high prevalence in this report. The renin-angiotensin-aldosterone system was implicated in the pathogenesis of both LVH\(^4\) and atherosclerosis.\(^7\) Thus, AII may be one of the common mediators explaining the association between LVH and CAD. Considering the abovementioned aspects, how could further regression of LVH in these patients be obtained? First, BP control (possibly optimal BP) should be achieved in all subjects using drug combinations that include an ACE inhibitor. Then, because the phenomenon of ACE escape is a possibility, the association of two drugs interfering with the renin-angiotensin-aldosterone system might be a choice, provided that strict control of renal function and potassium levels is achieved.

References

2. Koren MJ, Devereux RB, Casale PN, Savage DD, Laragh JH: Relation of left ventricular mass and geometry to morbidity and mortality in uncomplicated essential hypertension. Ann Intern Med 1991;114:345–352.


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