Losartan reduced stroke and new onset diabetes more than atenolol in essential hypertension with signs of left ventricular hypertrophy


QUESTION: In patients with essential hypertension and signs of left ventricular hypertrophy (LVH), is losartan based treatment more effective than atenolol based treatment?

Design
Randomised (un鼹cral allocation concealment), blinded (patients and monitoring committee), controlled trial with ≥4 years of follow up.

Setting
Multicentre trial in Europe and the US.

Patients
9222 patients 55–80 years of age (mean age 67 y, 54% women) with hypertension (sitting blood pressure [BP] of 160–200 mm Hg systolic, 95–115 mm Hg diastolic, or both after 1–2 wks of placebo) and electrocardiographic signs of LVH. Exclusion criteria included secondary hypertension; myocardial infarction (MI) or stroke within the previous 6 months; angina pectoris requiring treatment with β blockers or calcium antagonists; and heart failure or left ventricular ejection fraction ≤40%. Follow up was 99%.

Main results
Analysis was by intention to treat. The composite end point was a composite of cardiovascular mortality, MI, and stroke. One of the secondary end points was new onset diabetes.

Main outcome measures
The primary end point was a composite of cardiovascular mortality, MI, and stroke. The secondary end points were new onset diabetes and other adverse events. The results of this study should be viewed in the light of several limitations. Although approximately 25% of patients treated for hypertension in this age group had left ventricular diastolic dysfunction with normal ejection fractions, this percentage still reflects only a small subset of patients. Patients with other forms of coronary artery disease, including recent MI or angina pectoris, were excluded. This is an important exclusion criterion because many patients in this age range are often at risk for coronary artery disease. The patients were middle aged or older, mainly Caucasian, and from western countries, and so the results may not be generalisable to other populations. The cost effectiveness of losartan remains unclear, as no economic data were reported in this study.

Conclusion
In patients with essential hypertension and signs of left ventricular hypertrophy, losartan reduced strokes and new onset diabetes more than atenolol.

COMMENTARY
Although effective BP control in patients with hypertension and diabetes has been shown to decrease the frequency of subsequent cardiovascular disease, the added benefits of newer classes of drugs that interfere with the action of angiotensin are unclear. In a large multicentre study, Dahlöf et al attempted to differentiate the relative advantages of losartan, a selective angiotensin II type 1 receptor blocker, with those of the more widely prescribed atenolol, a β blocker. The 2 groups were closely matched for key demographic indicators, including severity of hypertension, prevalence of coexisting cardiovascular conditions, Framingham risk scores, and electrocardiographic LVH criteria.

The study found that losartan improved cardiovascular outcomes over a 4 year period. The effect on BP did not differ between the 2 study groups, and so the benefits of the drug arise from an effect over and above control of BP. Fewer patients in the losartan group stopped taking the drug because of serious side effects compared with patients in the atenolol group. This was an important finding because long term compliance with medication treatment is necessary to achieve long term control of hypertension and to improve cardiovascular outcomes.

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