

# FOCUS ON RESEARCH

## LEFT VENTRICULAR HYPERTROPHY (LVH) IN NORMOTENSIVE INDIVIDUALS: WOULD REDUCING BLOOD PRESSURE FURTHER ENHANCE LVH REGRESSION?

### Researchers

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### Aim

Patients with normal blood pressure (normotensives) and left ventricular hypertrophy (LVH) are common. LVH is a condition where the heart muscle is thickened (often due to high blood pressure). LVH independently increases cardiovascular risk and reducing LVH reduces risk. The aim of the study was to assess whether a small extra lowering of blood pressure which is already in the "normal" range would lead to a reduction in LVH.

### Project Outline/Methodology

This was a single-blind pilot study carried out in the Division of Medicine & Therapeutics at the University of Dundee. Fifty-one patients with normal blood pressure and LVH were recruited. After baseline blood and urine testing for markers of cardiovascular risk, 24 hour blood pressure monitoring and a baseline heart scan to measure how thick the heart muscle is, all recruits were randomly assigned to the active treatment arm (two thirds) or the placebo arm (one third). Those in the active treatment arm received extra antihypertensive medication to try to achieve a small fall in systolic blood pressure. The remainder received a placebo to maintain their baseline blood pressure. Recruits were carefully and regularly monitored over a period of 12 months. At the end of the study period a repeat heart scan was performed and all blood tests and 24 blood pressure monitoring were repeated. The difference between the heart thickening at the end of the study and that at the beginning of the study was compared between the 2 groups.

### Key Results

Thirty-five recruits completed the study (23 in the active arm and 12 in the placebo arm). The desired extra drop in blood pressure (BP) was achieved in those patients who received additional antihypertensive medication whereas no BP change was seen in the other group. Patients in the active arm achieved a significant reduction in their heart mass whereas those in the other group did not.

### Conclusions

This study has demonstrated that reducing blood pressure below currently recommended targets actually reduces heart muscle thickening.

### What does this study add to the field?

Other studies have looked at reducing heart thickening in those with mild hypertension but no study has investigated those in whom blood pressure is already normal but heart muscle is still thickened at baseline.

### Implications for Practice or Policy

Following further investigation this could lead to beneficial treatment for those with LVH, an important, but often ignored, risk factor for cardiovascular disease. It is likely that our current guidelines for management of hypertension will need to be revised to take account of this beneficial effect of a lower target blood pressure.

### Where to next?

Further studies are needed to confirm the observation of this study. Following this larger trials would be needed to assess whether the reduction in LV mass translates to clinical benefit in terms of a reduction in cardiovascular morbidity and mortality.

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