

**Trial:** A randomised controlled trial of the angiotensin converting enzyme inhibitor ramipril in asymptomatic aortic stenosis

**EudraCT:** 2007-005224-32

**Aims:** Angiotensin-converting enzyme (ACE) inhibitors improve left ventricular (LV) remodelling and outcome in heart failure and hypertensive heart disease. They may be similarly beneficial in patients with aortic stenosis (AS), but historical safety concerns have limited their use, and no prospective clinical trials exist.

**Methods and results:** We conducted a prospective, randomized, double-blind, placebo-controlled trial in 100 patients with moderate or severe asymptomatic AS to examine the physiological effects of ramipril, particularly LV mass (LVM) regression. Subjects were randomized to ramipril 10 mg daily (n = 50) or placebo (n = 50) for 1 year, and underwent cardiac magnetic resonance, echocardiography, and exercise testing at 0, 6, and 12 months, with follow-up data available in 77 patients. There was a modest but progressive reduction in LVM (the primary end point) in the ramipril group vs. the placebo group (mean change -3.9 vs. +4.5 g, respectively, P = 0.0057). There were also trends towards improvements in myocardial physiology: the ramipril group showed preserved tissue Doppler systolic velocity compared with placebo (+0.0 vs. -0.5 cm/s, P = 0.04), and a slower rate of progression of the AS (valve area 0.0 cm<sup>2</sup>) in the ramipril group vs. -0.2 cm<sup>2</sup>) in the placebo arm, P = 0.067). There were no significant differences in major adverse cardiac events.

**Conclusion:** ACE inhibition leads to a modest, but progressive reduction in LVM in asymptomatic patients with moderate-severe AS compared with placebo, with trends towards improvements in myocardial physiology and slower progression of valvular stenosis. A larger clinical outcome trial to confirm these findings and explore their clinical relevance is required.