Effect of the angiotensin receptor blocker Valsartan on coronary microvascular flow reserve in moderately hypertensive patients with stable coronary artery disease.

AIMS: To noninvasively investigate the effects of the angiotensin receptor blocker (ARB) Valsartan on myocardial microcirculation in moderately hypertensive patients with stable coronary artery disease (CAD).

METHODS AND RESULTS: In this prospective open-label study, patients with mild stable CAD and moderate systolic and/or diastolic hypertension were treated with 160 mg Valsartan daily. Myocardial blood flow was quantified noninvasively using positron emission tomography (PET) with N-13 ammonia at baseline, after one week and after 16 weeks. Mean blood pressure at rest improved significantly from baseline to week 16 (105 +/- 10 vs. 98 +/- 9 mm Hg; p = 0.017, n = 12), but no significant change was observed after one week (103 +/- 11 vs. 100 +/- 11, p = 0.43, n = 13). PET analysis revealed that flow increase during endothelial-dependent, sympathetic stimulation by cold pressor testing (CPT) and in response to pharmacologic vasodilation with adenosine improved from baseline after 1 week (CPT: 1.10 +/- 0.3 vs. 1.37 +/- 0.3; p = 0.017, adenosine: 2.34 +/- 0.52 vs. 2.91 +/- 0.81; p = 0.048) and at week 16 (CPT: 1.15 +/- 0.4 vs 1.39 +/- 0.2; p = 0.10, adenosine: 2.34 +/- 0.52 vs 2.81 +/- 0.91; p = 0.039). CONCLUSIONS: In patients with stable coronary disease, ARB results in improved PET-determined microvascular flow reserve. Improvements in
microcirculation preceded the reduction of blood pressure, suggesting direct beneficial effects on microvascular function.