

## Clinical Trial

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- , 19 (5), 899-905  
May 2001

# Isradipine Improves Endothelium-Dependent Vasodilation in Normotensive Coronary Artery Disease Patients With Hypercholesterolemia

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- PMID: 11393673
- DOI: [10.1097/00004872-200105000-00010](https://doi.org/10.1097/00004872-200105000-00010)

## Abstract

**Objective:** The dihydropyridine calcium antagonist isradipine has anti-atherosclerotic effects in animals and improves endothelium-mediated nitric oxide (NO)-dependent vasodilation in vitro. As improved endothelial function may be beneficial we investigated its effects in patients with a high likelihood of endothelial dysfunction.

**Design:** Thirty patients (two female, age 55.4 +/- 10.5 years) with known coronary artery disease and elevated (> 6 mmol/l) total cholesterol (cholesterol: mean 6.7 +/- 0.78 mmol/l) or a cholesterol/high density lipoproteins (HDL) ratio of > 5 not on lipid lowering therapy, participated in the study. Endothelial vasodilator function was assessed before and after double-blind, randomized administration of isradipine 5 mg/day or placebo for 3 months.

**Methods:** Endothelial function was assessed as forearm blood flow (FBF, venous occlusion plethysmography) responses to graded brachial artery infusions of acetylcholine (Ach), to the NO-synthase blocker NG-monomethyl-L-arginine (L-NMMA) and to the endothelium-independent vasodilator sodium nitroprusside (SNP). Blood pressure was measured either directly from the brachial arterial or by sphygmomanometer during clinic visits.

**Results:** Blood pressure was unchanged in both groups after 3 months (isradipine: 88.8 versus 92.1 mmHg; placebo: 81.0 versus 82.5 mmHg; NS) but cholesterol levels decreased similarly in both groups (isradipine: 6.7 versus 6.1 mmol/l, NS; placebo: 6.6 versus 5.9 mmol/l, P < 0.05). The vasodilator response to SNP and the decrease in FBF in response to blockade of NO synthesis by L-NMMA were unchanged in both groups. However, isradipine, but not placebo, enhanced the NO-dependent vasodilator response to Ach (P < 0.05).

**Conclusion:** Isradipine improves acetylcholine-mediated vasodilation in hypercholesterolemic patients independent of changes in lipids or blood pressure.