
BACKGROUND: Left ventricular dilatation and dysfunction after myocardial infarction are major predictors of death. In experimental and clinical studies, long-term therapy with the angiotensin-converting--enzyme inhibitor captopril attenuated ventricular dilatation and remodeling. We investigated whether captopril could reduce morbidity and mortality in patients with left ventricular dysfunction after a myocardial infarction.

METHODS: Within 3 to 16 days after myocardial infarction, 2231 patients with ejection fractions of 40 percent or less but without overt heart failure or symptoms of myocardial ischemia were randomly assigned to receive double-blind treatment with either placebo (1116 patients) or captopril (1115 patients) and were followed for an average of 42 months.

RESULTS: Mortality from all causes was significantly reduced in the captopril group (228 deaths, or 20 percent) as compared with the placebo group (275 deaths, or 25 percent); the reduction in risk was 19 percent (95 percent confidence interval, 3 to 32 percent; P = 0.019). In addition, the incidence of both fatal and nonfatal major cardiovascular events was consistently reduced in the captopril group. The reduction in risk was 21 percent (95 percent confidence interval, 5 to 35 percent; P = 0.014) for death from cardiovascular causes, 37 percent (95 percent confidence interval, 20 to 50 percent; P less than 0.001) for the development of severe heart failure, 22 percent (95 percent confidence interval, 4 to 37 percent; P = 0.019) for congestive heart failure requiring hospitalization, and 25 percent (95 percent confidence interval, 5 to 40 percent; P = 0.015) for recurrent myocardial infarction.

CONCLUSIONS: In patients with asymptomatic left ventricular dysfunction after myocardial infarction, long-term administration of captopril was associated with an improvement in survival and reduced morbidity and mortality due to major cardiovascular events. These benefits were observed in patients who received thrombolytic therapy, aspirin, or beta-blockers, as well as those who did not, suggesting that treatment with captopril leads to additional improvement in outcome among selected survivors of myocardial infarction.