

Introduction

The EUROPA trial has demonstrated that Perindopril, an Angiotensin-Converting Enzyme (ACE) inhibitor with high tissue ACE affinity, was able to significantly decrease the risk of major cardiac events (CardioVascular (CV) death, non fatal Myocardial Infarction (MI) and resuscitated Cardiac Arrest (CA)) in patients with stable coronary artery disease without apparent heart failure.

The goal of this study was to assess the long-term clinical outcome of patients with stable coronary artery disease and preserved left ventricular function (LV ejection fraction (LVEF) ≥ 40%).

Material and Methods

A retrospective evaluation of LVEF was performed in the EUROPA study population. 7096 (58%) patients were identified among the 12218 patients of EUROPA who had a quantitative LVEF measurement before randomization. LVEF measurements were obtained mainly by echocardiography in 5214 cases (73%), by angiography in 1470 cases (21%) or by nuclear cardiology in 403 cases (6%).

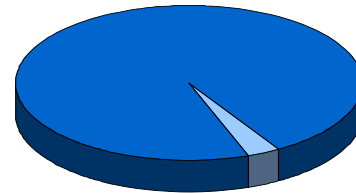
Two groups of patients were studied: the first group included 6878 (97%) patients with LVEF ≥ 40%: 3429 received Perindopril 8 mg and 3449 received a placebo. The second group: only 218 patients (3%) had an EF < 40%, 111 received Perindopril 8 mg and 107 a placebo. In all, mean LVEF was 57% (Fig.1). Thus, the vast majority of the cohort had preserved LV function.

There were no significant differences in clinical characteristics between the group of patients with or without LVEF measurements and the whole EUROPA study population (Table).

Fig. 1: Study population (n=7096)

Mean LVEF=57.0 ± 10.4%

LVEF ≥ 40%
n=6878 (97%)



LVEF < 40%
n = 218 (3%)

Table : Clinical characteristics of population

		Patients with quantitative LVEF measurements	Patients without quantitative LVEF measurements	All EUROPA patients*
Characteristics				
n		7096	5122	12218
Age	mean ± SD (years)	59.5 ± 9.4	60.8 ± 9.2	60.1 ± 9.3
Sex	Female n (%)	1012 (14.3%)	767 (15%)	1779 (14.6%)
History				
Myocardial infarction	n (%)	4834 (68.1%)	3076 (60.1%)	7910 (64.7%)
Percutaneous coronary intervention	n (%)	2083 (29.4%)	1490 (29.1%)	3573 (29.2%)
Coronary bypass surgery	n (%)	2059 (29.0%)	1528 (29.8%)	3587 (29.4%)
Previous stroke or Transient ischemic attack	n (%)	248 (3.5%)	161 (3.1%)	409 (3.3%)
Medication				
Platelet inhibitors	n (%)	6544 (92.2%)	4713 (92.0%)	11257 (92.1%)
Lipid-lowering drugs	n (%)	3854 (54.3%)	2977 (58.1%)	6831 (55.9%)
β-blockers	n (%)	4709 (66.4%)	2941 (57.4%)	7650 (62.6%)
Diuretics	n (%)	763 (10.7%)	453 (8.8%)	1216 (9.9%)
Ca-channel blockers	n (%)	2272 (32.0%)	1683 (32.9%)	3955 (32.4%)

* screening (ITT)

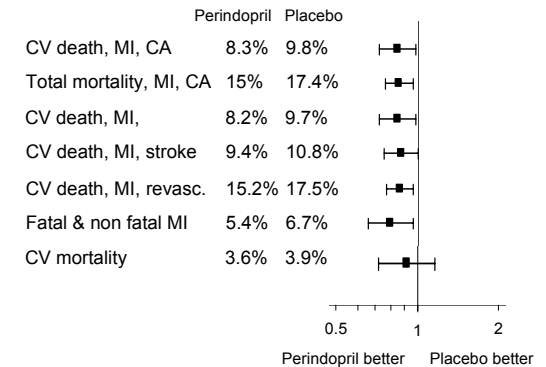
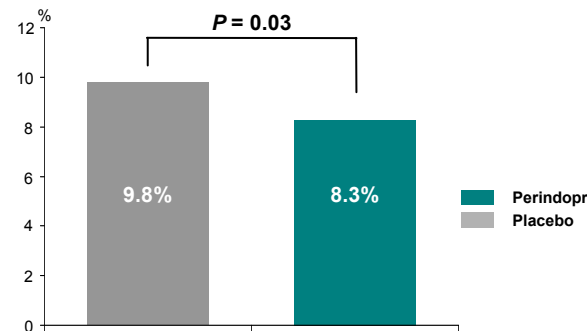
Results

In patients with preserved LV function (97%), a significant relative risk reduction of 16% of the primary end point (HR=0.84 [95% CI: 0.72-0.98], P = 0.03) was observed in the Perindopril group in comparison with the placebo group. Similar results were observed in risk reduction of MI and CV mortality (Fig.2).

In patients with impaired LV function (3%), a relative risk reduction of 38% was observed in the Perindopril group in comparison with the placebo group. Owing to the small number of patients (n=218) the difference was not significant (P = 0.13).

Fig. 2: Patients with preserved LV function (n=6878)

Primary endpoint: (CV death, non fatal MI, resuscitated cardiac arrest)



Conclusion

These results demonstrate that the EUROPA study was conducted in a group of patients with documented coronary artery disease and preserved LV function. They confirm that Perindopril, an ACE inhibitor with high tissue ACE affinity, at daily dose of 8 mg, has a beneficial effect in the broad spectrum of patients with stable coronary artery disease.