Cyprus Survey of Coronary Heart Disease
A study among 1,200 patients with established coronary heart disease

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Introduction

Coronary Heart Disease (CHD) is a major cause of morbidity and mortality across Europe(1); the prevention of further cardiovascular events in patients with established CHD is therefore a priority for public health (2). Previous studies have addressed this issue and have shown that there is considerable potential for improvement (3,4). Considerable information emerged from the Euroaspire I and II surveys, conducted in 9 and 15 European countries, respectively, which examined the risk profile and the management of CHD patients in an attempt to improve secondary prevention measures. Smoking, blood pressure, cholesterol levels, and the use of the most common cardiac drugs aspirin, beta blockers, angiotensin converting enzyme inhibitors, and statins were studied. The investigators concluded that there is still much potential to improve measures in the European societies. Cyprus did not participate in this survey, which was conducted in 1995/96 and repeated in 1999/00. However, starting in 2002, we designed and conducted a similar to the Euroaspire survey, the "Cyprus CHD Survey" among 1,200 CHD patients, who sought medical care in the cardiology clinics of our public hospitals. The results are presented in this paper.

Participants, Methods and Results

A total of 1,200 patients with established coronary disease, were studied, between January 2003 and January 2006 (300 consecutive patients on the first month of each year of study). All of them had at least one of the following inclusion criteria: history of myocardial infarction, PCI, or CABG surgery. On the visit to the cardiology clinic of the hospital (median time 1.6 years after the event, 1.4 years in Euroaspire II), their risk factor profile, including smoking habits and body-mass index, the usual biochemical parameters, including full lipid profile, and the treatment given, were recorded.
Total cholesterol was considered abnormal if ≥190 mg/dl. Blood pressure was considered elevated if SBP≥140 mmHg and/or DBP≥90 mmHg and in patients with DM if SBP≥125 mmHg and/or DBP≥85 mmHg. Obesity was considered if BMI≥ 30 kg/m^2
The population studied represents 0.2% of the total population of Cyprus and approximately 10% of the estimated coronary population of the country. Of them 84% were men. Mean age was 64 years. The tables that follow show the characteristics of the patients, the prevalence of risk factors and secondary preventive drug treatment. Our data is compared to that of the Euroaspire II survey. The results are shown in tables 1-4.
Eighty-four percent (75% in Euroaspire II) were men (Table 1). The age distribution is similar, but patients recruited in Euroaspire were less than 70 years old. Each country participated with approximately 400 patients in Euroaspire, which represents one third the number of our study population.
The prevalence of smoking in our country is similar to the average European (Table 2). Twenty three percent of our patients continue smoking on average 1.6 years after the cardiac event. The prevalence of diabetes and of obesity, is higher in our survey. Elevated BP (SBP≥140 and/or DBP≥90 mmHg) and elevated total cholesterol (≥190 mg/dl), on the visit to the clinic, is observed in a similar degree, in both surveys.
Table 3 shows the use of preventive drugs, commonly given in CHD patients for secondary prevention. With the exception of beta-blockers, all other 3 groups of drugs (aspirin, ACE inhibitors and statins), are more frequently used in our patients than in the average European coronary population.
Blood pressure goal is different in patients with diabetes. The guidelines suggest that BP levels should not exceed 130 for SBP and or 80 mmHg for DBP (10). Such values however are achieved in only 15% of the diabetic subgroup, compared to the overall 30%. In general BP control is poorer in our diabetic CHD patients.

Table 1. General characteristics

	Cyprus CHD Suvey	Euroaspire II Suvey
N	1.200	5.556
Men	84%	75%
Mean age	64 years	?
<51 years old	18%	22%
51-60 years old	32%	34%
61-70 years old	38%	44%
>70 years old	12%	-

Table 2. Risk Factors

	Cyprus CHD Suvey	Euroaspire II Suvey
Continued smoking	23%	21%
Obese	36%	31%
Elevated BP	52%	50%
Elevated cholesterol	56%	58%
History of DM	33%	20%

Table 3. Preventive drug treatment

	Cyprus CHD Suvey	Euroaspire II Suvey
Aspirin	94%	86%
Beta - blocker	60%	63%
ACE inhibitor	63%	38%
Statin	89%	61%

Table 4. Blood Pressure (BP) behaviour in Cyprus CHD survey

	Without history of DM	With history of DM
N	802	398
SBP<120 and/or DBP<80	10%	5%
SBP<130 and/or DBP<80	30%	15%
SBP<140 and/or DBP<90	55%	30%
SBP≥140 and/or DBP≥90	45%	70%

Discussion

The Cyprus survey of CHD, which is the first large survey of secondary prevention conducted in Cyprus, shows that there is ample potential for improving the major cardiac risk factors among patients with established coronary heart disease. The survey also shows that prophylactic drug therapy is still underused. Similar to our results, high prevalence of risk factors was also observed in Euroaspire (5) and in the earlier UK Aspire survey (6).

Stopping smoking is perhaps the most important action any person with established coronary disease can make, yet almost a quarter of our study population still smoke, compared to one fifth of the patients in Euroaspire. There is however considerable evidence showing the long-term benefit of giving up smoking after an acute coronary syndrome (7,8).

Obesity is directly related to cardiovascular and to all-cause mortality (9). It may also influence negatively, blood pressure, HDL, LDL and triglyceride levels, as well as glucose tolerance. More than one third of our patients were obese on presentation to the clinic, compared to less than one third, in the Euroaspire.

Unlike smoking and obesity, blood pressure and blood cholesterol control, show great similarity between our survey and the European survey. About half the patients had elevated blood pressure on the visit to the clinics in both surveys, in spite of antihypertensive medications. Control of blood pressure among Cyprus survey patients with and without diabetes, was different. Our data show that BP is less well managed among patients with, than without DM. We now know that management of blood pressure is at least as important as good control of blood glucose, and better control in these high risk patients is needed.

Lipids were less well managed than blood pressure. More than half of all patients had cholesterol greater than 190 mg/dl. This is similar in both surveys although more Cyprus survey patients were taking statins compared to the average European.

With the exception of beta blockers, the use of prophylactic drugs is more frequent in Cyprus survey than in Euroaspire II. However, these are still underused, especially, ACE inhibitors whose role in the management of CHD has gained much popularity over the last few years.

Appendix

Part of these results were presented in the ESC/WCC Congress of Cardiology 2006, in Barcelona. The presentation was partly sponsored by the Cyprus Society of Cardiology. For recruitment of patients a number of doctors, whose names are mentioned in alphabetical order underneath, participated actively, or supervised the data of the investigators. Antoniades L, Charalambides C, Eleftheriou O, Fessas C, Ioannides M , Kontos Ch, Mavrommatis P, Minas M, Moutiris J, Nicolaides E, Papadopoulos E, Petsas A, Stylianou Ar, Tryfonas A, Zambartas C†

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