

Taking measures of secondary prevention of coronary heart disease in clinical practice

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Abstract

Recommendations for prevention of coronary heart disease are measures that are available to both individuals and entire populations to detect diseases and faster and more successful intervention, respectively a measure directed against the progression or recurrence of diseases in people with established disease. Secondary prevention of coronary heart disease seemed to measures aimed at preventing relapses and progression of atherosclerosis in people who already have developed disease. Modification of coronary risk factors is a key part of secondary prevention of coronary disease. The main risk factors remain important predictors of long-term prognosis in patients with coronary artery disease. New studies on the application of measures of secondary prevention of coronary heart disease showed a high prevalence of adverse lifestyle characteristics, other risk factors and inadequate use of prophylactic drugs in patients with coronary disease. Inadequate treatment of risk factors in coronary patients is similar in Europe and other parts of the world.

Key words

coronary heart disease, cardiovascular disease, risk factors, guidelines, prevention

Introduction

Cardiovascular diseases (CVDs), among which coronary heart disease is the most common, are the major cause of death in middle age and older people in most European countries. Coronary heart disease is the leading cause of death in men over 45 and women over 65 years throughout Europe, but there are enormous differences in mortality between countries and within countries over time. CVD (including coronary heart disease and stroke) accounts for 49% of all deaths in Europe and for 30% of all deaths before the age of 65 years. One of eight men and one of seventeen women die from CVD before the age of 65 years. There is up to 10-fold difference in premature CVD mortality between Western Europe and countries in Central and Eastern Europe, with the highest mortality rates in the east. As a result of therapeutic and preventive measures to control the CHD epidemic, mortality has declined steadily during the last several decades with consequent gains in life expectancy; however, this decrease in mortality started to plateau in the 1990's^{1,2}. Secondary prevention is identifying and treating people with established disease and those at very high risk of developing cardiovascular disease, which involves the treatment and rehabilitation of patients with known cardiovascular disease to prevent future cardiovascular events, including myocardial infarction, stroke, and heart failure. The secondary prevention patient population includes those with established coronary and other atherosclerotic vascular disease, including peripheral arterial

disease, atherosclerotic aortic disease and carotid artery disease¹. However, one might also consider expanding this to persons with other coronary heart disease risk equivalents, such as those with a >20% 10-year calculated risk of CHD, diabetes, chronic kidney disease, or with significant subclinical coronary atherosclerosis (e.g., high levels of coronary artery calcification). Secondary prevention of coronary artery disease is effective in reducing morbidity and mortality, but deficiencies in implementation and prescription bias have been identified.

Risk factor modification and secondary prevention guidelines

Risk factor modification is the foundation of secondary prevention efforts in persons with CHD^{1,3}. This comprehensive approach involves lifestyle modification efforts including smoking cessation, diet, and physical activity, pharmacologic therapies to ensure control of blood pressure, lipids and glucose, and the use of cardioprotective drug therapies (Table 1). Over the past decade, guideline panels, including those from the American Heart Association (AHA) and American College of Cardiology (ACC)¹ as well as European panel^{10,28}, have developed a series of recommendations for therapy and clinical management of risk factors in persons with CHD. Evidence confirms that aggressive comprehensive risk factor management improves survival, reduces recurrent events and the need for interventional procedures, and improves the quality of life in these patients.

Status of risk factor control and recommended treatments

Previous studies have shown that cardiovascular risk factors among CHD patients are poorly controlled⁵, with many exceeding target levels⁶. Previous reports⁷ have focused on clinical or hospitalized samples, U.S. population data from free-living U.S. adults with CHD describing the adequacy of recommended treatments and risk factor control are limited. Recent reports from the U.S. National Health and Nutrition Examination Survey have shown barely a third of those with CVD to be at a recommended LDL-C <100 mg/dl with only a sixth at recommended levels of all lipids, and less than half at recommended levels of blood pressure.^{8,9}

Lifestyle, risk factor, and therapeutic goals set by recommendations of Joint European Societies for coronary disease prevention in clinical practice are not realized by most patients throughout Europe^{10,11}. Many national multicenter studies showed results similar to those in EUROASPIRE I (1995/96), EUROASPIRE II (1999/2000), and EUROASPIRE III (2006/2007)^{4,12}, EUROASPIRE IV (2011/2012).^{30,31} The results of EUROASPIRE I, II, III and IV surveys demonstrated a high prevalence of unhealthy lifestyles, modifiable risk factors and inadequate use of drug therapies to achieve blood pressure and lipid goals in patients with established CHD and people at high risk of developing cardiovascular disease, with wide variations in medical practice between countries. The comparison between these EUROASPIRE surveys demonstrates a substantial gap between the standards set in the CVD prevention guidelines in clinical practice. These surveys, show that lifestyle trends in patients with CHD are growing cause for concern^{12-14,30,31}. Other surveys have also reported inadequate risk factors management and underuse of prophylactic drug therapies in patients with CHD in Spain (PREVESE I and II) in 1994 and 1998¹⁷⁻¹⁸, France (PREVENIR, 1998 and 1999, Usik 1998 and 2000)¹⁹, Republic of Srpska/Bosnia and Herzegovina (ROSCOPS I, II, III, IV) in 200²¹, 2003²¹, 2007²¹ and 2011²⁹ Croatia (TASPIC-CRO) in 1998²⁰ and 2003, and Serbia in 2008/2009^{23,27}. In EUROASPIRE IV study yet four out of ten patients have blood pressure levels this. Just over half of all patients on one or more anti-hypertensive drug therapies are therapeutically controlled to target. Of those on lipid lowering therapy less than a third are therapeutically controlled to target. About one half of those who were smoking at the time of their coronary event are still smoking „ persistent smokers“. Yet half of them intend to quit in next six months. Four out of five patients are overweight and more than half are centrally obese and third are obese. Almost half of all patients with CHD have either self reported diabetes or newly detected diabetes on an OGTT. Only 41% of all coronary patients attend a cardiac rehabilitation programme.

What is abundantly clear from these European surveys is that drug therapies are simply not insufficient and they have to be combined with the professional support to make lifestyle changes and also manage their risk factors more effectively. Simply giving a drug prescription is not enough. Patients need to understand the nature of their disease and how to manage it through achieving a healthy lifestyle and adhering to cardioprotective drug therapies over the long term. Most important of all, ad-

verse lifestyle trends in the general population calls to attention the urgent need for a societal strategy for CVD prevention. They illustrate how difficult it is for individual patients to change their behavior, despite the development of life-threatening disease, given that their unhealthy life-styles are shared by an ever-increasing proportion of the adult population. To help patients to quit smoking, adopt a healthy diet and increase physical activity requires sustained professional support. All patients with coronary disease as well as those at high risk of developing CVD should be able to access preventive cardiology programs^{14,17,30,31}.

Vulic et al. recently reported treatment rates for recommended treatments (ACE/ARBs, beta-blockers and lipid-lowering medication) are higher than reports from previous investigations in clinical populations that have examined CHD patients²¹. Adherence to lifestyle advice about diet, exercise and smoking cessation following acute coronary syndrome (ACS) has a substantial effect on lowering the risk of further events, according to a study of more than 18,000 patients²⁴. According to an accompanying editorial, this marked improvement in cardiovascular morbidity and mortality seen with lifestyle modification in the ACS population is “a novel and compelling finding”. The editorial adds that such results “should raise a new level of focus on the timely initiation of behavioral modification after MI, similar to what is currently done with acute pharmacological intervention”. It was striking in the study that at 30 days following ACS, 96.1% of subjects had been prescribed antiplatelet drugs and 78.9% statins, while around one-third of smokers were still smoking, and adherence to neither diet nor exercise recommendations was reported by 28.5%.

Multiple studies of the use of these recommended therapies in appropriate patients continue to show that many patients in whom therapies are indicated are not receiving them in actual clinical practice. The AHA, ACC and ESC urge that in all medical care settings where these patients are managed that programs to provide practitioners with useful reminder clues based on the guidelines, and continuously assess the success achieved in providing these therapies to the patients who can benefit from them be implemented. Data from a national samples of people with CHD show that a substantial majority were not optimally treated for BP, lipids, and HbA1c, but better in comparison with previous reports.^{22,25,30,31} Further research into identification of patient and provider factors, resulting in suboptimal treatment, is needed. Further education of patients and providers in the appropriate use of multiple or combination treatments to appropriately treat risk factors to goal is also needed, General practitioners are in a unique position to provide ongoing advice, support and counseling to such patients with established CHD, who require life-long risk factor control and treatment management.

Conclusions

Patients with established heart disease or CVD risk equivalents are at high risk for acute coronary events. Multiple randomized clinical trials have documented the valuable clinical benefits of aggressive risk factor modification for the prevention of recurrent events and mortality.

Guidelines established by European, American, and other societies have described the assessment, goals, and management strategies for key areas of secondary prevention including smoking cessation, blood pressure control, lipid management, physical activity, weight management, diabetes management, antiplatelet therapy, renin-angiotensin system blockade, beta-blockade, and most recently, influenza vaccination. All coronary patients should be offered comprehensive multidisciplinary preventive programme to reduce their total cardiovascular risk.

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