

Lifestyle changes in secondary prevention of coronary heart disease: breaking the chains of unhealthy habits

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The management of patients with acute coronary complications includes three components: short-term local therapy for clinically significant coronary obstructions, cardiac rehabilitation (CR) and long-term treatment of the underlying atherosclerotic process. Of these, the last mentioned appears to be the most challenging.

There is little question as to which factors should be addressed to inhibit progression of the disease, and guidelines on this topic are clear and consistent around the world. Changing unhealthy lifestyles may lead to reductions in the risk of mortality that are greater than the benefits of some of the acute treatments for coronary disease [1]. Unfortunately, the success of these lifestyle changes in practice is limited. In general, drug treatments and the achievement of their target values are relatively adequate [2]. However, the widely recommended healthy lifestyles are frequently not achieved. In a recent observation from 17 countries, nearly 1 in 5 individuals continued to smoke, only 1 in 3 individuals reported high levels of physical activity and 2 in 5 reported a healthy diet [3]. As these proportions are based on self reports, true numbers may in fact be lower. Thus, a large gap exists between guidelines and their implementation in reality. The causes for this discrepancy are multiple and complex.

On the patient's side, it is challenging to change habits that have been in place for many decades, that are shared with their partner and with their social environment, and that are generally associated with short-term quality of life. In addition, the concept of long-term prevention is complex: the sacrifices are clear and instant whereas the rewards are uncertain and distant. Some of the lifestyle changes may be costly to the patient, such as healthy food choices and engaging in exercise.

On the physician's side, the short-term treatment of coronary disease is rewarding, in medical, psychological and financial terms, whereas the management of long-term risk is less rewarding and not infrequently frustrating. In recent years, the management of secondary prevention has increasingly been transferred to paramedical personnel. Nurses, physiotherapists and dieticians now play an important role, particularly in addressing the lifestyle-related components. Nonetheless, overall results are suboptimal and new approaches are needed to promote healthy lifestyles and thus achieve better outcomes.

The OPTICARE study is designed to test two strategies to improve implementation of guideline-based secondary prevention, in addition to a standard program of CR, in patients with a recent coronary incident [4]. In the COACH arm, a previously explored approach of telephone coaching is added, with five contacts in the first 6 months after hospital discharge. Coaches are trained nurses in a single, central facility who encourage the patients to adopt healthy lifestyles and to adhere to their medication.

In the CAPRI arm, more group sessions are added to the regular program, pedometers are issued to provide feedback on activities and additional long-term sessions are included in the first year after hospital discharge. In this study arm, medications for low-density lipoprotein (LDL) and blood pressure control are titrated to target levels by study personnel, in collaboration with the treating physician.

The control group will receive CR as it is currently offered (usual care). The primary outcome of the study is an overall estimate of the 10-year risk of cardiovascular morbidity and mortality, the Systematic Coronary Risk Evaluation (SCORE) calculation. Secondary outcomes include risk factors separately and clinical events. In addition, cost-effectiveness will be analysed.

As outlined above, the OPTICARE study addresses a very important subject, and if completed as planned may contribute to real improvements in secondary prevention. The tested

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interventions are widely applicable, if proven successful. The goals of the study are ambitious and include improvements in virtually all components of secondary prevention, ranging from improved achievement of target values for LDL cholesterol and blood pressure to improved physical activity and cessation of smoking. Since self-reported outcome measures may not be reliable, the outcomes of the study at 12 months follow-up are measured by objective assessments, such as accelerometry and breath carbon monoxide.

In studies on long-term prevention, an overall quantification of risk is the preferred outcome parameter. The primary outcome of the OPTICARE study, the SCORE risk estimate, is validated only in primary prevention. For secondary prevention, no such risk function is available. In secondary prevention, the absolute SCORE estimate is not a meaningful metric. However, for comparisons among groups and between baseline and 12-month outcome, SCORE can be used as a relative measure. A similar approach was selected in the RESPONSE 1 study [5]. Another limitation of this primary outcome parameter in the OPTICARE study is that it does not reflect a number of important risk factors that are addressed in the interventions, including physical activity and healthy food choices. Any favourable change in these parameters will be missed in the SCORE function. The authors describe the study as featuring a PROspective Open, Blinded Endpoint (PROBE) design. However, this reflects only the secondary outcome parameter of clinical events, for which the study is not powered statistically.

Cost-effectiveness is an important component of the study. If improvements are achieved only at great cost, implementation into practice is not likely to occur. The time span of this analysis, of 12 months, is likely to lead to underestimation of cost effectiveness. If successful adoption of healthy lifestyles is indeed achieved, the benefits may, ideally, persist in the patient's remaining lifetime and thus lead to better results at the same cost.

In the interventions tested in OPTICARE, personal attention by (para)medical professionals stands out as one of the most important components. A single advice given in an outpatient visit has little impact, particularly in the long term. In fact, most patients are aware of the traditional risk factors and the recommendation to improve on them hardly provides

new information. Repeated personal attention from professionals, in addition to group pressure and partner support, may be required to achieve permanent changes in lifestyle. Based on similar concepts in secondary prevention in patients with coronary artery disease, the RESPONSE 2 study is currently underway in the Netherlands. In this study, external commercial parties are involved in addressing the three most important lifestyle components: overweight and obesity (Weight Watchers®), physical inactivity (Philips DirectLife® activity program) and smoking (Luchtsignaal®). In the future, combinations of the interventions described in studies such as OPTICARE and RESPONSE 2 will hopefully assist our patients in adopting a healthy lifestyle and thus prevent recurrences of their disease.

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