SCIENTIFIC EDITORIAL

Cardiac rehabilitation provides favourable long-term dietary changes. Why not extend the educational programme?

La rééducation cardiaque conduit à des modifications favorables des comportements alimentaires à longue échéance. Pourquoi ne pas étendre sa pratique?

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In western countries, the prevalence of cardiovascular disease has increased dramatically in recent years despite significant improvements in medical therapies and new diagnostic and interventional tools, culminating in a better overall prognosis. Guidelines for lifestyle and dietary modification in patients with coronary artery disease are supported mainly by evidence from general-population studies but there is only limited evidence that these recommendations actually improve long-term follow-up, life expectancy and individual benefits. These recommendations agree on nine lifestyle and dietary changes [1,2]. Previous meta-analyses [3—5] have identified exercise therapy as a major element of cardiac rehabilitation but until now only a few studies were conducted to assess the impact of dietary counselling during a cardiac rehabilitation programme on long-term dietary adherence. In a large meta-analysis, Taylor et al. [5] found a 20% (0.68—0.93) reduction in cardiac events following exercise-based rehabilitation; cardiac rehabilitation was associated with a significant reduction in concentrations of total cholesterol (−0.37) and triglycerides, without an increase in concentrations of plasma high-density lipoprotein. In another very important meta-analysis, Iestra et al. [6] convincingly showed the health benefits of lifestyle changes (risk reduction 0.56, 95% confidence interval 0.42—0.74). In their paper, the nine recommended lifestyle and...
dietary changes were investigated but the relationship between lifestyle modifications and the cardiac rehabilitation programme was not studied in detail. A significant influence on cardiac mortality was observed only for three of the lifestyle recommendations (smoking cessation, increased physical activity and moderate alcohol consumption). For the six individual dietary goals (regular consumption of fish or reduction in saturated fats), data were too limited to provide reliable effects on life expectancy. In their review [6], no study was found to combine reliably changes in both lifestyle and dietary multifactors and impact on overall or cardiac mortality. However, recent dietary trials have shown that increased consumption of fruits and vegetables and decreased consumption of fat products have a good influence on risk factors (Dietary Approaches to Stop Hypertension [DASH Diet]). Following on from this study, Appel et al. (OMniHeart randomized trial) [7] modified the DASH Diet by introducing a high intake of unsaturated fat and demonstrated beneficial effects on blood pressure and concentrations of high-density lipoprotein cholesterol and triglycerides, with a respective decrease of 17% in the Framingham risk score and 29.4% in the PROCAM risk score (estimated 10-year risk of coronary artery disease in men, with comparable effects in women).

In this issue of Archives of Cardiovascular Diseases, Froger-Bompas et al. [8] report the long-term benefits of rehabilitation programmes on dietary adherence. This interesting paper identifies increased fruit and vegetable intake, improvement of lipid concentrations, and increased levels of omega-3 and omega-6 polyunsaturated fatty acids (PUFAs), plasma folate and vitamin C in a group of patients who had an acute coronary syndrome and undergone a cardiac rehabilitation programme between 6 months and 3 years earlier, and compared them with a group of patients following a recent acute event. The PUFA/saturated fatty acid ratio and erythrocyte contents of omega-3 PUFAs remained significantly higher 2 years after completion of the cardiac rehabilitation. Despite limitations — single centre non-randomized study, exclusion of women, lack of a comparative study group who did not undergo a cardiac rehabilitation programme and no relationship between dietary changes and cardiac events — this study is one of the few [7—12] that examines the long-term influence of a cardiac rehabilitation programme on diet education and its ability to maintain dietary changes in daily life. Its originality is also based on the use of a simple, validated food frequency questionnaire. These findings highlight the fact that cardiac rehabilitation improved health behaviour following a large intervention programme involving risk factors, nutrition education and psychological input. Recently, the GlOBal Secondary Prevention strategEis to Limit Event Recurrence After Myocardial Infarction (GOSPEL) study [12], in which 3241 patients were randomized, demonstrated that a multifactorial, continual, reinforced intervention up to 3 years after rehabilitation is effective in decreasing the risk of cardiovascular outcomes (cardiovascular mortality, non-fatal myocardial infarction and stroke). The benefit is related to a healthy diet, changes in triglycerides and high-density lipoprotein concentrations, reduction in body weight and decreases in blood pressure.

Twardella et al. [11] also conducted a prospective longitudinal study in a large cohort of patients (n=1206) undergoing cardiac rehabilitation after an acute coronary event, with 3-year follow up. The authors observed major improvements in dietary intake during rehabilitation compared to the patients’ previous nutritional habits. In this trial, dietary data were self-reported using a semiquantitative food-frequency questionnaire, which contains 36 items. No biological measurements were given, leading to limitations in the interpretation of the results, and no relationship was found between nutritional changes and potential benefits on prognosis. The dietary modifications were only partially maintained at the end of follow-up and most patients relapsed to their former eating habits as in the study by Froger-Bompas et al. However, the most important information reported by Twardella et al. [11] was probably the very high frequency of patients (two-thirds) hospitalized due to an acute coronary event or cardiac revascularization procedure and recruited for a cardiac rehabilitation programme in Germany. In contrast, the results of PREVENIR survey [13] had shown the low rate of patients offered this effective prevention intervention in France.

In the study by Froger-Bompas et al., dietary counselling conducted during the cardiovascular rehabilitation programme led to the substitution of saturated for unsaturated fats and to a sustained improvement in dietary habits. Most trials reported that increased consumption of omega-3 fatty acids or fish oil was as effective in preventing cardiovascular events in secondary prevention [14—19], but the totality of data on the effect of omega-3 fatty acids on cardiovascular outcome suffered from many limitations that make the drawing of firm conclusions difficult. Erkilla et al. [18] succeeded in showing a positive link between modification in dietary fat intake and reduction in cardiac mortality. The American Heart Association [20] recommend limiting the intake of saturated fats to less than 7% of energy and of trans fats to less than 1%, and minimizing the intake of partially hydrogenated fats.

Finally, the extent of access to cardiac rehabilitation for patients suffering from coronary heart disease could be one of the major objectives of an ambitious educational programme. Cardiac rehabilitation could be considered as a true secondary prevention strategy, combining interventions to ensure better physical, psychological and social
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conditions, and to optimize and improve health behaviour. The Agency for Healthcare Policy and Research [3] defined it as the provision of comprehensive long-term services involving medical evaluation, exercise, modification of cardiac risk factors, dietary counselling and psychological intervention. The international recommendations are to balance quantitative and qualitative intake and physical activity. The two first points should include individualized dietary goals. However, long-term results must be assessed in future studies to confirm the relationships between a cardiac rehabilitation programme, dietary habits and changes in plasma concentrations and their impact on subsequent mortality and cardiac events. Another ambitious public health challenge will be to sustain long-term consumption of healthy food by regular individual counselling and learning. This educational approach could be cost-effective and provide a revolution in the prevention of coronary heart disease because short-term interventions do not yield long-term benefits, and may have a positive impact on patients’ quality of life or decrease their morbidity and mortality.

References