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What are patients actually eating: the dietary practices of cardiovascular disease patients

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Abstract

Purpose of review—To examine dietary quality for patients after a coronary heart disease (CHD) event using a selective review.

Recent findings—Poor dietary quality is a risk for patients before and after CHD events. Although cardiac rehabilitation programs often contain a nutrition education component and are advised for many patients, few patients attend cardiac rehabilitation. The American population experiences many difficulties with adherence to a higher-quality diet. A diet high in dietary quality is important in reducing risk of recurrent disease, yet few patients who have faced life-threatening cardiac events are adherent to such dietary recommendations.

Summary—A review of the literature indicates the need for postevent dietary evaluation and effective nutrition counseling with ongoing follow-up. In addition, we need to demonstrate the effectiveness of such approaches.

Keywords

coronary heart disease; dietary quality; secondary prevention

Introduction

Cardiovascular disease (CVD) is a leading cause of death in the developed countries, with an estimated 80 million Americans having CVD, with 16.8 million (21%) of those having coronary heart disease (CHD) [1]. CHD remains the number one cause of mortality in Americans. Modifiable risk factors include diet and sedentary lifestyle [2]. Secondary prevention of CHD is critical for the improvement of quality of life and the reduction of healthcare costs [3]. Lifestyle changes, such as healthy diet, have been shown to reduce the risk of future cardiac events by either enhancing the effectiveness of cardiac medications or controlling cardiac risk factors such as weight, blood pressure, diabetes, and dyslipidemia, independently of medications. Because diet plays such a pivotal role, our review will focus on the dietary intake of patients with CHD.

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Current dietary recommendations for coronary heart disease patients

Health professionals reflect a varied background of nutrition education and experience. As a consequence their advice to patients will vary accordingly. This advice may include directions with regards to the timing and frequency of meals, amounts of certain food components and calories consumed at each meal, and different balances of macronutrients and micronutrients, or may be much more general such as ‘lose weight, and reduce your fat intake’. Meal plans recommended may include such programs as the Mediterranean, American Heart Association (AHA), and Ornish diets, a low-fat diet, a low-carbohydrate diet, a high-protein diet, and a low-sodium diet.

After a cardiac event, patients may be referred to cardiac rehabilitation, a medically supervised program to help CHD patients recover quickly and improve their overall physical, mental and social functioning. According to the most recent AHA update, the core components of cardiac rehabilitation include baseline patient assessment, nutritional counseling, risk factor management (lipids, blood pressure, weight, diabetes mellitus, and smoking), psychosocial interventions, and physical activity counseling and exercise training [4].

The AHA Diet and Lifestyle Recommendations – revision 2006, are at the core of recommendations made to patients with CHD. However, they include 13 recommendations that may be overwhelming for patients just after a CVD event: balancing caloric intake with physical activity; consuming a diet rich in vegetables and fruits; choosing wholegrain, high-fiber foods; consuming fish at least twice a week; limiting intake of saturated fat to less than 7% of energy, trans fat to less than 1% of energy, and cholesterol to less than 300 mg/day by choosing lean meats and vegetable alternatives, choosing fat-free or low-fat dairy products, minimizing intake of partially hydrogenated fats; minimizing intake of beverages and foods with added sugars; choosing and preparing foods with little or no salt; if alcohol is consumed, doing so in moderation; and, when eating food prepared outside the home, continuing to follow the AHA Diet and Lifestyle Recommendations [5]. In addition, risk factors (i.e. diabetes, tobacco addiction, heart failure, high blood pressure, obesity, etc.) vary by patient, which often dictates a refocusing of dietary changes and may add to patient confusion.

Because these recommendations are confusing, we are currently testing a simple dietary message approach – increasing dietary fiber versus the AHA diet. We hypothesize that such a simple dietary message can be easier to adhere to, and will have beneficial collateral effects on other areas of diet (e.g. reduced caloric and saturated fat intake, and increased intake of protective foods). Our pilot study results are promising [6•], and a large clinical trial is currently underway [7•].

Current research and publications

A MEDLINE search was performed for studies of dietary quality after CHD diagnosis (January 2005 to December 2009). The following keywords were used in combination: ‘diet’, ‘dietary quality’, ‘dietary patterns’, ‘adherence’, ‘coronary heart disease’ and ‘cardiovascular disease’. Few studies have examined dietary quality after CHD diagnosis. Patients who participated in the Prospective Registry Evaluating Myocardial Infarction: Events and Recovery (PREMIER) health status study (n = 2498)were evaluated for adherence to diet, smoking cessation, weight loss, and cardiac rehabilitation. Adherence was determined from the medical records by recording which of these instructions were documented as being provided to patients at discharge and 1 month post discharge, and how well they had followed these instructions. Fewer than half recalled receiving any advice about cholesterol management, or weight loss [8••]. One month after discharge, only 51% of

patients self-reported that they were ‘adherent’ to dietary instructions, 43% to weight loss, and 33% to cardiac rehabilitation. A detailed dietary measure or questions regarding the specific diet that was advised were not used in this study.

A Swedish case–control study of post-myocardial infarction (MI) patients (525 cases, and 1890 controls without a history of MI) and their diets indicated that total fat and saturated fat intakes were lower in cases than in controls, whereas intakes of carbohydrate and protein were higher in cases than in controls [9]. The study also indicated that levels of several micronutrients, such as ascorbic acid, folate, fiber, and vitamin E, were higher in cases than in controls.

Murphy *et al*. [10] examined changes in women’s total dietary fat intake following an acute cardiac event, evaluating consecutive admissions of 239 women aged 36–84 years to four hospitals at the time of an acute event in Australia. Total fat intake decreased substantially during the first 2 months following hospitalization, and then increased over the subsequent 10 months. By 12 months, total fat intake remained significantly lower than at baseline. Baseline interviews were conducted in hospital 4–8 days following admission, and pre-event measures were not available. The investigators suggested that future studies investigate options for assisting patients to sustain dietary changes, with special concern for older patients and those with hypertension, who showed less reduction in total fat intake. A Short Fat Questionnaire (SFQ) [11] was used to measure total fat intake in this study, so changes in saturated or trans fat, or any other AHA recommendations, could not be determined.

We measured the diet quality of 555 CHD patients using 24-h diet recall 1 year after diagnostic coronary angiography [12]. Using the Alternative Health Eating Index (AHEI) [13] to assess diet quality, we found that a high proportion of those patients had not made the necessary improvements to their diets to help reduce the risk of a secondary CHD event. Of a maximum 80 points – which indicates the healthiest diet – the average AHEI score was 30.8. When AHEI components were examined, only 12.4% of the participants met the optimal daily consumption of vegetables (does not include potatoes) and 7.8% for fruit. Only 8% of the patients met the cereal fiber recommendation, and only 5.2% of the participants limited their trans fat intake to 0.5% of total calories or less. In addition, nearly 11% of calories were from saturated fat (less than 7% is recommended), whereas total fiber was only 16.8 g per day (25 g or more per day is recommended). Similarly to our study, Andersen *et al*. [14] examined dietary quality in 116 Norwegian patients with CHD. A self-administered food frequency questionnaire (FFQ) was used to assess diet. Using a similar score of AHEI (with same questions), they found that 91.3% of the participants had a suboptimal diet quality. Since dietary quality has been shown to be associated with cardiovascular outcomes [13,15], the improvement of dietary quality should reduce CHD recurrence. These studies suggest significant room for improvement in dietary quality for secondary prevention of CHD.

Using a prospective cohort study design, Twardella *et al*. [16] examined long-term adherence to dietary recommendations with a cohort of 1206 patients in Germany undergoing inpatient rehabilitation after an acute manifestation of CHD. Dietary intake was collected before, during, and 1 and 3 years after rehabilitation using a FFQ [16]. A nutritional index was used to measure dietary quality, which was developed using the recommendations made by nutritional associations in Germany and was the basis for the meals served in the rehabilitation clinics. The index emphasized a balanced diet of meat and low-fat foods, high intake of fruits, vegetables, and wholemeal bread, and avoidance of eggs, cream, sugar-rich foods, salty snacks, French fries (chips), and convenience foods, which is similar to the AHEI. They found that intake of recommended food items such as low-fat sausage, margarine, and wholemeal was increased after rehabilitation compared with

the year before rehabilitation, whereas the intake of high-fat and not recommended food items such as French fries, milk, eggs, white bread, and cake was decreased. However, 1 and 3 years after rehabilitation these improvements were only partially maintained.

In the United States, roughly 80% of CHD patients do not attend cardiac rehabilitation programs. Using Medicare claim data, Suaya *et al*. [17] reported that only 50 000 (18.7%) of 267 427 Medicare-eligible patients above 65 years of age who experienced a CHD event participated in a cardiac rehabilitation program. Low participation rate was associated with the following characteristics including: older age (>85), female sex, nonwhite racial/ethnic status, lower socioeconomic status, significant comorbid conditions, and long distance from the patient's home to a cardiac rehabilitation center. In addition, current policies specify that, for patients to participate in a cardiac rehabilitation program, they must be referred by their healthcare provider. Because of competing demands on their time and attention, many clinicians may not remember to refer their patients to a cardiac rehabilitation program. A systematic review of 10 published observational studies (1999–2004) [18] found that referral rates to cardiac rehabilitation ranged from 10 to 60%, and the mean referral rate was approximately 34%. However, attendance at cardiac rehabilitation, after referral, was less than 50% in almost all of the studies.

Conclusion

A review of the literature indicates the need to emphasize dietary evaluation and counseling after a CHD event. Optimal care should include cardiac rehabilitation, or alternatives that fit the patient's financial and time constraints, with individual and group counseling with dieticians that can build upon the patient's initial dietary pattern to improve his or her diet and overall health long term.

Future CHD secondary prevention efforts should increase the integration of nutrition education materials targeting dietary quality into cardiac rehabilitation programs. To increase cardiac rehabilitation program attendance, simplifying insurance coverage policies for cardiac rehabilitation programs and increasing dietary counseling reimbursement can help stimulate greater use of these services to improve dietary quality. In addition, educational efforts targeted at improving both patient and provider awareness of the importance of cardiac rehabilitation programs and dietary counseling for CHD patients will help to reduce barriers to use these services. The development of improved systems for referral and more aggressive follow-up of patients after CHD are also needed.

In this busy, cost-conscious era, we must direct attention and provide multiple-level support for one of the most cost-effective changes that can take place: improvement in dietary quality.

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References and recommended reading

Papers of particular interest, published within the annual period of review, have been highlighted as:

• of special interest

•• of outstanding interest

Additional references related to this topic can also be found in the Current World Literature section in this issue (p. 533).

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